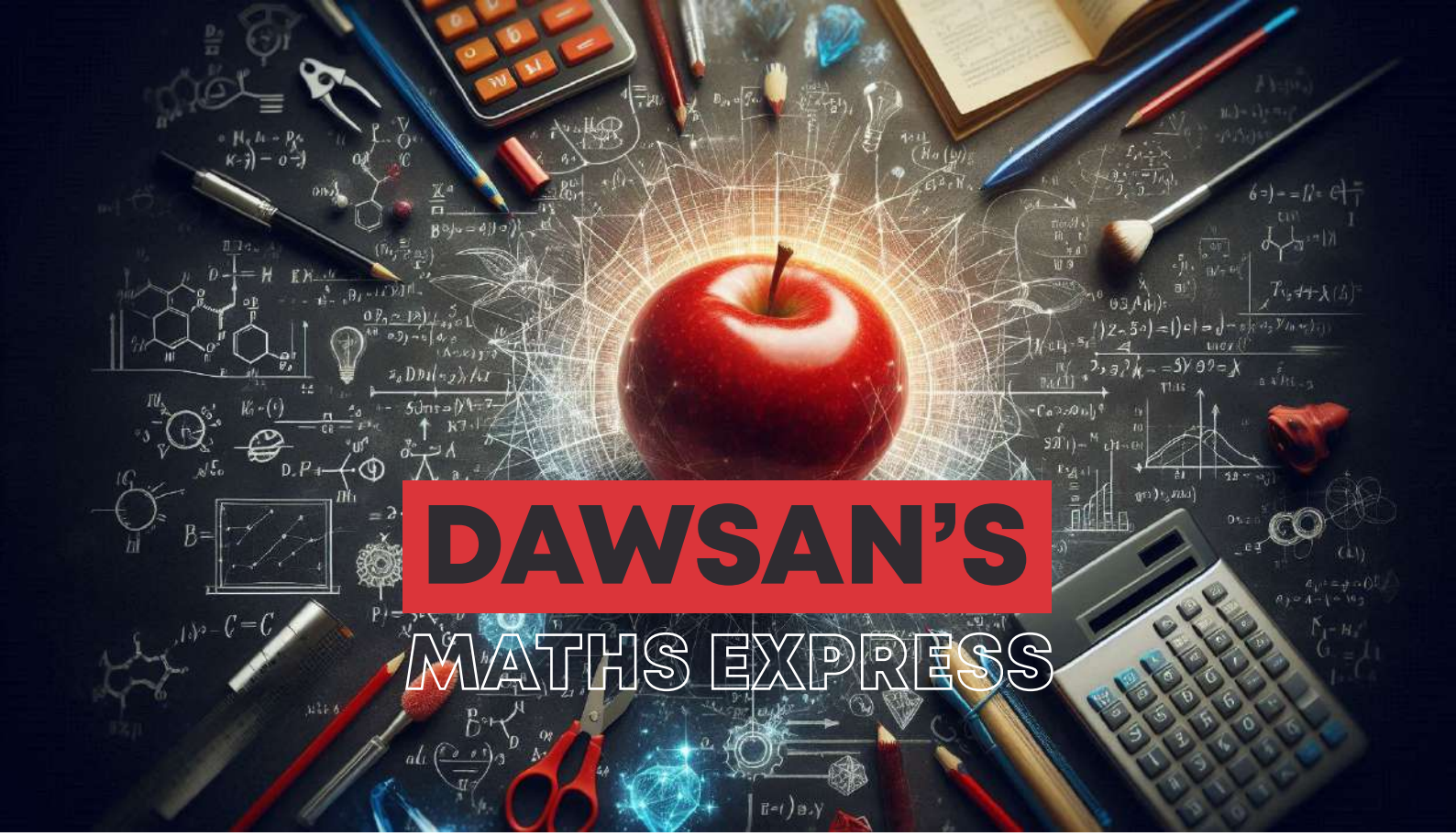


S. Edwards and D.Williams

Dictionary Orientation Exercises

NAME

DAWSAN'S
Maths
EXPRESS

S. Edwards & D. Williams

These fun exercises are devised to be used in conjunction with the Dawsan's Maths Dictionary. This will familiarize the learners with the content of the dictionary and instill them with a feeling of self-confidence, as it enables them to work independently.

CONTENT

WHAT OPERATION ?

Looking at the examples below, find the name given to each of the amounts according to their operational position.

MULTIPLIER	1st ADDEND	SUBTRAHEND	DIVISOR
2nd ADDEND	SUM	PRODUCT	QUOTIENT
DIFFERENCE	DIVIDEND	MINUEND	MULTIPLICAND

2 361 → …… 13 201 → ……

\+ 946 → …… - 5 624 → ……

3 307 → …… 7 577 → ……

2 411 → …… 1 541 → ……

X 3 → …… …… ← 4 ⟌6 164 → ……

7 233 → ……

Now calculate the following:

1. Multiplier + 30 = ……
2. 1st Addend - 29 = ……
3. Subtrahend + 41 = ……
4. Product - 6 = ……
5. Quotient + 10 = ……
6. Minuend + 30 = ……
7. Multiplicand + 31 = ……
8. Dividend - 48 = ……
9. Difference - 20 = ……
10. Divisor x 222 = ……

If all your answers are **palindromic** you have possibly scored 100%!

IN ORDER PLEASE!

Arrange the following in the order specified. Refer to your dictionary for the words as given or refer to Special Words.

A. ASCENDING ORDER:

1. Millennium ……..
2. Gross ……..
3. Pi ……..
4. Dozen ……..
5. Score ……..
6. Great Gross ……..
7. Century ……..
8. Brace ……..
9. Baker's Dozen ……..
10. Decade ……..

B. DESCENDING ORDER:

1. 3^{rd} multiple of 5. ……..
2. 5^{th} even number. ……..
3. Highest factor of 24 (excluding 24). ……..
4. 7^{th} odd number. ……..
5. 5^{th} prime number. ……..
6. Only even prime number. ……..
7. 1^{st} counting number. ……..
8. 4^{th} prime number. ……..
9. Highest factor of 18 (excluding 18). ……..
10. 1^{st} natural number. ……..

If the sum of B's answers is equal to 4 score, you're spot on!

NAMING NUMBERS

Match each definition with a set of numbers.

DEFINITIONS:

1. Factors of 16.
2. Multiples of 4 between 10 and 30.
3. First five prime numbers.
4. Numbers divisible by 17.
5. Roman numerals represented by one letter.
6. Odd numbers
7. Consecutive numbers.
8. Multiples of 6 and 4.
9. Even numbers.
10. Numbers divisible by 8.

SETS OF NUMBERS:

a) 5; 10; 50; 100; 500; 1 000; … ……

b) 34; 51; 68; 85; 102; … ……

c) 2; 3; 5; 7; 11 ……

d) 2; 4; 6; 8; 10; … ……

e) 12; 16; 20; 24; 28 ……

f) 12; 13; 14; 15; 16; 17; … ……

g) 1; 2; 4; 8; 16 ……

h) 12; 24; 36; 48; 60; … ……

i) 16; 24; 32; 40; 48; … ……

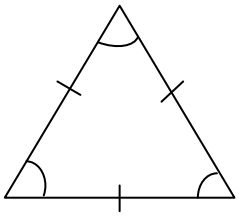
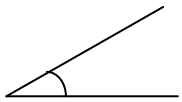
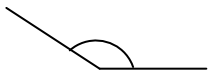
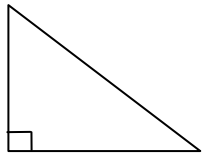
j) 1; 3; 5; 7; 9; 11; … ……

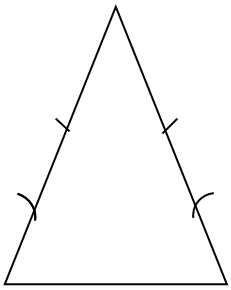
IDENTIFICATION

Identify the following angles and triangles. Choose your answers from the selection given. Refer to Angles and Triangles.

REVOLUTION; EQUILATERAL Δ; RIGHT ∠; ACUTE ∠; SCALENE Δ; RIGHT-ANGLED Δ; REFLEX ∠; STRAIGHT ∠; OBTUSE ∠; ISOSCELES Δ

1. An angle of 90°.
2. Δ with all angles equal, all sides equal.
3. An angle $>$ 90°.
4. An angle of 360°.
5. An angle of 180°.
6. Δ with no angles equal, no sides equal.
7. An angle $<$ 90°.
8. Δ with two sides equal, two angles equal.
9. An angle $>$ 180°.
10. Δ with one angle equal to 90°.

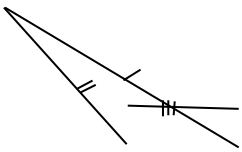
	NAME	**PROPERTIES**
	_____	_____
	_____	_____
	_____	_____
	_____	_____



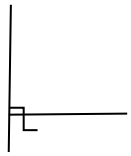
_____ _____

_____ _____

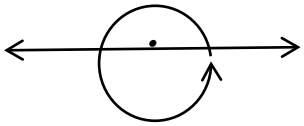
_____ _____



_____ _____



_____ _____

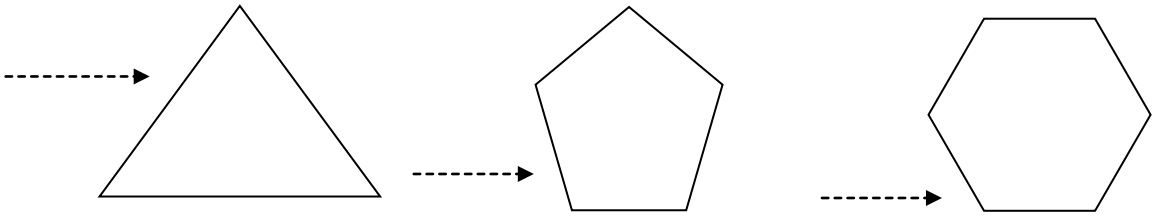


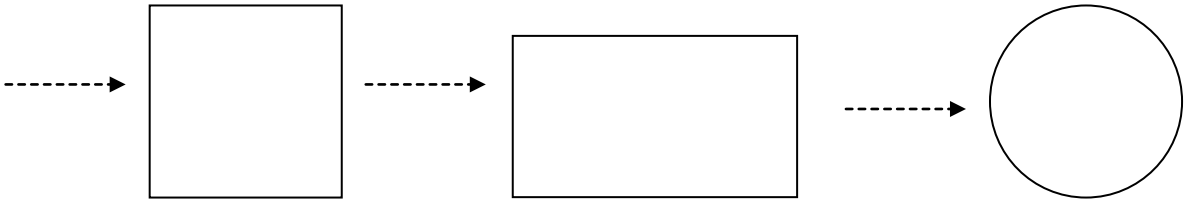
_____ _____

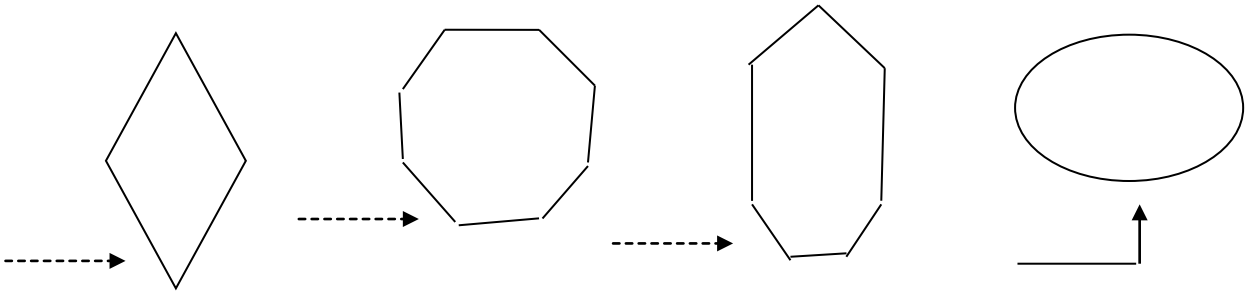
Shaping-up

From the selection of answers given, identify each of the following shapes. Refer to **quadrilaterals** and **polygons.**

square	circle	rectangle	heptagon	parallelogram	trapezium
rhombus	octagon	triangle	pentagon	kite	hexagon	ellipse







DO AS THE ROMANS DO

Calculate the following and choose your answer from the selection given in the box below. (Answer in Roman numerals).

M	XL	D	MM	$\overline{X}$
LXXX	XXVI	$\overline{XI}$	DCL	LII

1) XX x IV = ……

2) DXX ÷ XX = ……

3) CC + D - L = ……

4) (CL + L) x V = ……

5) D x IV ÷ L = ……

6) IX + VIII + XXXV = ……

7) CCL x IV - D = ……

8) D x II + CM + C = ……..

9) M x (IX + I) = ……..

10) (X + I) x M = ……..

SEARCH FOR THE WORD

Once you have answered the questions, find the word/s on the grid provided. The words may read forwards, backwards or diagonally.

F	T	L	L	A	R	E	T	A	L	I	U	Q	E	S	S
I	O	P	L	S	V	P	A	R	A	L	L	E	L	T	E
F	M	R	S	O	D	D	R	A	E	Y	P	A	E	L	P
T	W	O	T	C	O	M	P	O	S	I	T	E	G	D	T
Y	R	U	T	N	E	C	Q	N	T	H	I	N	K	G	E
G	N	A	C	W	I	U	O	H	O	W	A	O	I	R	T
N	E	V	E	S	E	G	A	N	S	I	W	C	R	I	S
F	S	E	R	Q	A	N	H	I	R	E	T	A	U	U	C
O	K	M	O	T	P	E	N	T	A	G	O	N	W	T	T
U	H	O	C	B	A	K	E	R	S	D	O	Z	E	N	E
R	O	O	S	W	H	S	S	O	R	G	T	A	E	R	G
E	N	E	L	A	C	S	Q	P	R	O	D	U	C	T	E
D	E	C	A	D	E	M	U	I	N	N	E	L	L	I	M
S	N	O	T	E	Q	U	A	L	S	U	I	D	A	R	I
B	Q	T	H	G	I	A	R	T	S	O	C	T	E	T	R
P	I	O	X	E	L	F	E	R	E	S	U	T	B	O	P

1. A period of a thousand years. ……
2. A group of seven people. ……
3. 12 gross. ……
4. A triangle with equal sides and equal angles. ……
5. A polygon with 8 sides. ……
6. A period of 10 years. ……
7. Special name for the number 20. ……
8. A polygon with 3 sides. ……
9. A period of 14 days. ……
10. 12 dozen. ……
11. Special name for one more than a dozen. ……
12. A quadrilateral with all sides equal. ……
13. A period of 366 days. ……
14. A polygon with 5 sides. ……
15. A period of 100 years. ……

16. Name for the symbol π. ……

17. Numbers with only two factors. ……

18. Group of 3 people. ……

19. Group of eight musicians. ……

20. Period of 7 days. ……

21. $\angle$ greater than 180°. ……

22. Value of Roman numeral L. ……

23. Number of months with 31 days. ……

24. Number in a brace. ……

25. Meaning of the symbol ||. ……

26. Any number **not** divisible by 2. ……

27. $\angle$ smaller than 90°. ……

28. $\angle$ of 180°. ……

29. Δ with no sides equal, no angles equal. ……

30. Meaning of the symbol $\neq$. ……

31. $\angle$ greater than 90°. ……

32. Number of right angles in a square. ……

33. Any number with more than two factors. ……

34. Name given to the answer of a multiplication sum. ……

35. Distance from the centre of a circle to the circumference. ……

MAKING PROGRESS

Complete each progression by filling in the next two elements in each set. Refer to: Prefixes, Special words, Appendix: Tables of measure – British, Roman numerals and Time.

1. year; decade; _____ ; _____ .
2. uni; bi; tri; tetra; _____; _____.
3. I ; V ; X ; L ; _____; _____ .
4. Inches; feet; yards; _____; _____ .
5. Solo; duet; trio; _____; _____ .
6. Triangle; quadrilateral; pentagon; _____; _____ .
7. Second; hour; day; _____; _____ .
8. Gills; pints; quarts; _____; _____ .
9. X ; L ; C ; _____ ; _____ .
10. Twins; triplets; quadruplets; _____; _____ .

VITAL PLACE VALUE

All the questions in this task are based on the respective value of each digit in the following number:

125 648

Each answer is represented by a letter. Find your answer below the dashes at the bottom of the page, on each dash fill in the applicable letter. This will spell out a simile.

1. The value of the 2 divided by the value of the 4. _____ (T)
2. The product of the value of the 8 and the value of the 4. _____ (R)
3. The difference between the value of the 6 and the value of the 4. _____ (A)
4. The value of the 1 divided by the value of Roman numeral M. _____ (G)
5. The value of the 6 divided by the first prime number. _____ (S)
6. The product of the value of the 8 and Roman numeral XX. _____ (B)
7. The sum of $\frac{1}{2}$ the value of the 6 and $\frac{1}{4}$ of the value of the 4. _____ (U)
8. Add 100 to (the value of the 1 divided by the value of the 5). _____ (O)
9. (The sum of the value of the 4 and the value of the 8), multiplied by Roman Numeral V. _____ (I)
10. Half the value of the 5, divided by half the value of the 4. _____ (N)
11. The value of the 2 divided by C. _____ (H)

_____	_____	_____	_____	_____	_____		_____	_____	_____
160	320	240	100	200	500		560	300	560

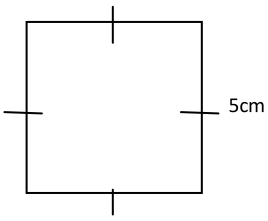
_____	_____	_____	_____	_____	_____	!
160	310	500	500	120	125	

AREA AND PERIMETER

Calculate the area and perimeter of each of the following. Once you have recorded your answer, cross off the numbers in the box. For example if your answer is 24 cm^2, cross off a 2 and a 4. When you have completed all the questions you should have deleted all the numbers.

0; 0; 0; 1; 1; 1; 1; 1; 1; 2; 2; 2; 2; 2; 2; 2; 2; 2; 2; 2; 2; 3; 3; 3; 3; 4; 5; 6; 6; 6; 8; 9

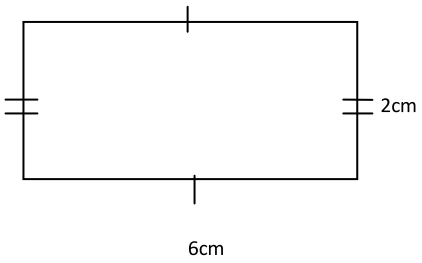
1.



Perimeter = ...

Area = ...

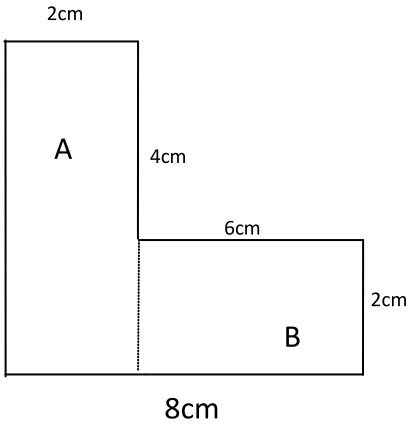
2.



Perimeter = ...

Area = ...

3.

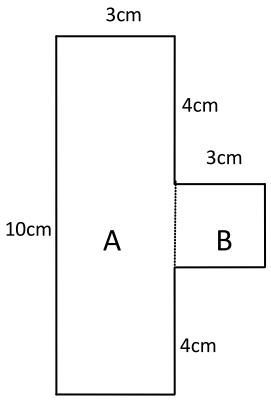


Perimeter = ...

Area of A = ...

Area of B = ...

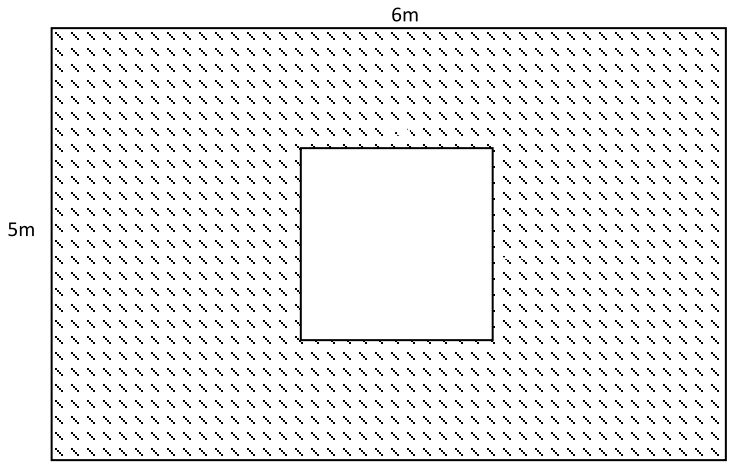
4.



Perimeter = ...

Area of A = ...

Area of B = ...



Perimeter of outer rectangle = ...

Perimeter of inner square = ...

Area of inner square = ...

Area of outer rectangle = ...

Area of shaded section = ...

ORDER OF OPERATIONS

Match each equation with a numerical description found in the box below. You MUST apply the rules for the Order of Operations.

GROSS; MILLENNIUM; DECADE; BAKER'S DOZEN; SCORE;
THREE DOZEN; NUMBER OF MONTHS WITH 31 DAYS; CENTURY;
NUMBER OF DAYS IN A FORTNIGHT; NUMBER OF DAYS IN A LEAP YEAR.

1. 11 + 2 x 3 - 4 = ……..
2. 12 x 2 + 48 ÷ 4 = ……..
3. (20 + 5) x 4 + 4 x 11 = ……..
4. 15 + 2 x 6 ÷ 4 - 11 = ……..
5. 24 ÷ 3 x 2 + $\sqrt{16}$ = ……..
6. 18 + 12 x 5 + (2 x 11) = ……
7. 10 x 5 ÷ 2 x 40 = ……
8. $\sqrt{144}$ ÷ 2 x 60 + 6 = ……..
9. 2 + 36 ÷ 4 x 2 - 6 = ……
10. 5 x (1 + 3) ÷ 2 = ……..

WHAT'S THE NAME ?

Using the words given below, find a name given to describe each of the following sets of numbers.

RATIONAL	EVEN	COMPOSITE	PALINDROMIC	PRIME
ODD	COUNTING	CONSECUTIVE	ORDINAL	NATURAL

1. 2; 3; 5; 7; 11; 13; … ……
2. 2; 4; 6; 8; 10; 12; … ……
3. 11; 232; 5665; 18 281; … ……
4. 0; 1; 2; 3; 4; … ……
5. 1; 3; 5; 7; 9; … ……
6. 27; 28;29; 30;31; 32; … ……
7. 1^{st}; 2^{nd}; 3^{rd}; 4^{th}; 5^{th}; … ……
8. 4; 6; 8; 9; 10; 12; 14; 15; … ……
9. 1; 2; 3; 4; 5;… ……
10. $\frac{1}{2}$; 0,15; 0,9; 1; 1,5; $2\frac{1}{2}$; … ……..

VERY MIXED NUMBERS!

Remembering the rules for the Order of Operations, solve the following equations. A selection of answers is given, however you must work out both questions and answers to find the matching pairs.

QUESTIONS **Matching Pairs**

1. $\sqrt{625}$ + 2^3 + $\frac{1}{2}$ of 12^2 ..... _____

2. A millennium ÷ 10^2 x 7,5 ..... _____

3. $\frac{1}{4}$ of 180 x (0,75 + $2\frac{1}{4}$) ..... _____

4. 3^3 x (1,35 + 0,65) ..... _____

5. $\frac{1}{2}$ x 4^3 + $\sqrt{256}$ ..... _____

6. ($\frac{35}{4}$ x $\frac{4}{5}$)^2 + (1st natural number)..... _____

7. ($\sqrt{156{,}25}$ + $\frac{5}{2}$) x 2^4 ÷ 10 ..... _____

8. (The reciprocal of $\frac{1}{4}$) x $5\frac{1}{4}$ + 4^3 ..... _____

9. ($2\frac{1}{4}$ + $\frac{7}{4}$) x 3^2 ÷ 2^2 ..... _____

10. (1st composite number)^2 - 2^2 ..... _____

ANSWERS

a) $\sqrt{28\,561}$ - 68 x 0,5 .....

b) 10^2 - (3rd multiple of 5) .....

c) 0,24 x (12^2 - 11 x 4) .....

d) 10^2 + 5 .....

e) 8^2 + (5th prime number) .....

f) 2^6 - 4^2 .....

g) $\sqrt{3\,025}$ - 1^4 .....

h) $10\frac{7}{9}$ - $1\frac{7}{9}$ .....

i) (1 score)^2 ÷ 5^2 - 2^2 .....

j) 5^2 + $\sqrt{625}$ .....

SHAPE AND SIZE

Using the clues given below, name the geometrical shape. (References: Quadrilaterals, Time, Polygons, Prefixes and Special Words).

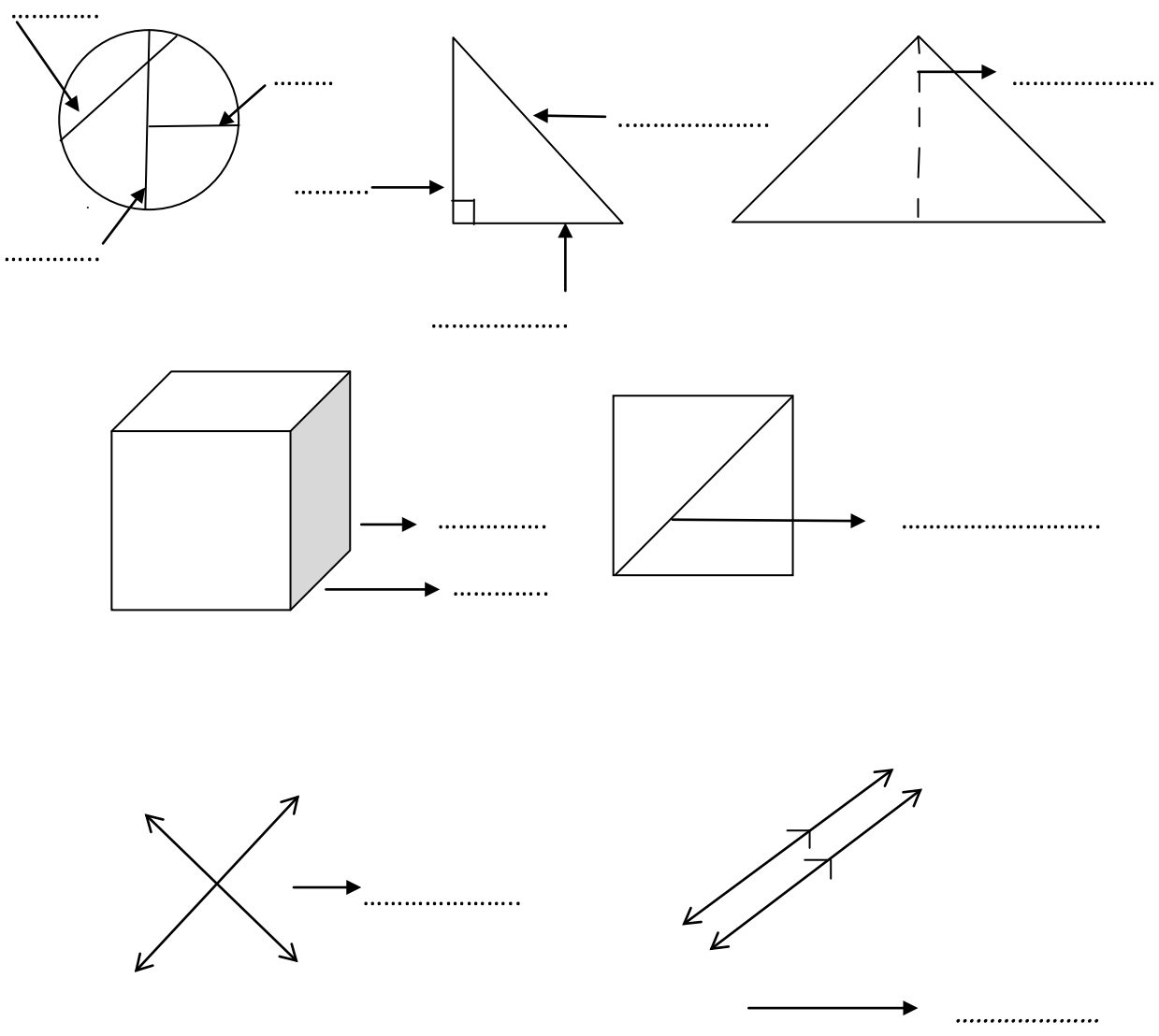
TRIANGLE; HEPTAGON; OCTAGON; NONAGON; SQUARE; HEXAGON PENTAGON; DECAGON; DODECAHEDRON; QUINDECAHEDRON

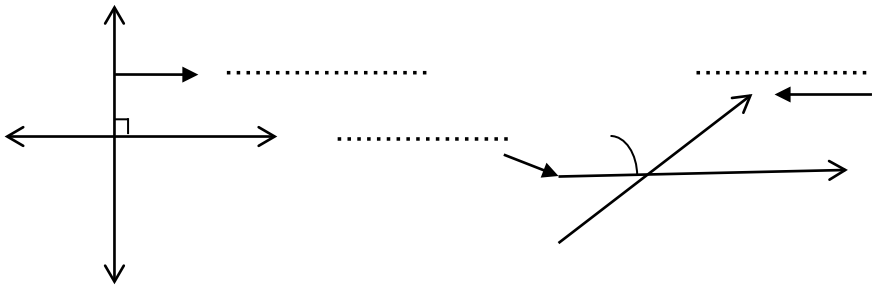
1. ……. has the same number of sides as the number of months with 30 days.
2. ……. has the same number of sides as a score divided by 4.
3. ……. has the same number of sides as a gross divided by 4 dozen.
4. ……. has the same number of sides as a baker's dozen minus the number of sides on a quadrilateral.
5. ……. has the same number of sides as the reciprocal of $\frac{1}{6}$.
6. ……. has the same number of sides as a great gross divided by a gross minus $\frac{1}{2}$ a decade.
7. ……. has the same number of faces as the total number of people in a quartet, a trio, a duet and a sextet.
8. ……. has the same number of sides as the sum of the 1st prime number, the 1st natural number and the 3rd odd number.
9. ……. has the same number of faces as the number of hours from 8 am to 8 pm.
10. ……. has the same number of sides as the ordinal number of this question.

GEOMETRIC TERMS

Using the words given in the box below, identify the following geometric terms.

RAY; DIAGONAL; EDGE; VERTEX; HYPOTENUSE; PARALLEL LINES; FACE; LINE OF SYMMETRY; CHORD; RADIUS; BASE PERPENDICULAR; DIAMETER; HEIGHT; INTERSECTING LINES





Now, using your dictionary, find this word:

__ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __ __

1. 2. 3. 4.

1. The last letter of number 6's answer.
2. The first letter of number 2's answer.
3. First letter of number 10's answer.
4. The last letter of number 2's answer.

ARE YOU AFRAID OF THIS NUMBER?

PROBLEMATIC PROGRESSIONS

Fill in the next two numbers in each of the progressions. The first six are straight forward, thereafter you may have to make some calculations. (References: Square root, Powers, Fibonacci Sequence, Prime Numbers, Composite Numbers, Roman Numerals).

1) 2; 3; 5; 7; 11; …….; …….

2) 1; 1; 2; 3; 5; 8; 13; …….; …….

3) 4; 6; 8; 9; 10; 12; …….; …….

4) 1; 4; 9; 16; 25; …….; …….

5) 2; 4; 8; 16; 32; …….; …….

6) V; X; XV; XX; XXV; …….; …….

7) 7; 9; 12; 14; 17; 19; …….; …….

8) I; II; IV; VII; XI; XVI; …….; …….

9) 100; 51; $26\frac{1}{2}$; $14\frac{1}{4}$; …….; …….

10). 100; 99,5; 98,5; 97; 95; …….; …….

OPERATIONAL POSITION

Using your dictionary and referring to the examples below, identify each amount according to its operational position and then complete the questions that follow.

14 625 + 355 = 14 980	15 625 - 5400 = 10 225
2 683 x 25 = 67 075	31 950 ÷ 15 = 2 130

1. (Difference ÷ Multiplier) - 5 = ……
2. (1st Addend - Subtrahend) + 4 = ……
3. (Quotient x Multiplier) - 15 = ……
4. (Dividend + Product) + 74 = ……
5. (Divisor x Multiplicand) - 41 = ……
6. (Difference + Sum) + 47 = ……
7. (Sum ÷ Multiplier) - 4,2 = ……
8. (Minuend - Sum) + 1 = ……
9. (Dividend ÷ 2nd Addend) + 9 = ……
10. (Product - Difference + Quotient) + 5 = ……

IF ALL YOUR ANSWERS ARE PALINDROMIC YOU HAVE POSSIBLY SCORED 100% !

WHERE IN THE WORLD?

In order to identify each of the following places, you must first find the co-ordinates. Thereafter, read the clue and then refer to the index . If there is a connection between the clue and the name of the place, you are right! Example: (3 dozen - 2^1)°S and (2 centuries - $\sqrt{625}$)°E. That is 34°S and 175°E.
Clue: From the orient are? Answer: Three Kings (New Zealand).

1. ($4\frac{1}{2}$ decades)°N and (5th composite number)°E. _____
   Clue: McDonalds don't give you a full meal here.
2. ($\sqrt{196}$)°N and (10^2)°E. _____
   Clue: They shot the rooster!
3. (0,6 ÷ 0,12)°N and ($\frac{1}{6}$ of 3 score)°E. _____
   Clue: A nudist colony!
4. (11th multiple of 1st composite number)°N and ($\sqrt{13\ 225}$)°W. _____
   Clue: A city of bachelors?
5. (20% of 70)°N and (11^2)°E. _____
   Clue: Is their language Afrikaans?
6. (0,1 0f 420)°N and ($\frac{1}{3}$ of 279)°W. _____
   Clue: Far too many outlaws in this place!
7. (Number of sides on 3 pentagons)°N and (3 dozen)°E. _____
   Clue: Oh my word!
8. (12th multiple of 2nd prime number)°N and (2 score)°W. _____
   Clue: But their currency is pounds!
9. ($\frac{2}{3}$ of an hour)°S and (25% 0f 700)°E. _____
   Clue: But they should be 'All Blacks' supporters!
10. (13th prime number)°S and ($1\frac{3}{4}$ of a century)°E. _____
    Clue: You'll find a mixture of black and white here!
11. (Roman Numerals: XXV x II)°N and ($\sqrt{13\ 456}$)°W. _____
    Clue: Strong stable-hands urgently required!
12. (2^5 + 2^1)°N and ($\frac{1}{3}$ of 240)°E. _____
    Clue: The home of a famous nurse?
13. (16th prime number)°N and (Number of days in a fortnight)°E. _____
    Clue: A smelly place?
14. (7th multiple of 7 - 2^3)°N and (6th composite number)°E. _____
    Clue: People just drift around in this place.
15. (4 dozen - $\sqrt{16}$)°N and ($\frac{1}{3}$ of 165)°W. _____
    Clue: A place just recently discovered?
16. (Number of sides on 6 kites)°S and (20% of 140)°E. _____
    Clue: No cold showers!
17. (5 decades - $\frac{1}{2}$ a decade)°N and (1 century – 4th prime number)°W. _____
    Clue: No rapids here!
18. (Double the 9th prime number)°N and (10 dozen)°E. _____
    Clue: There is no poverty in this place.
19. (14th prime number – 6th counting number)°N and ($\sqrt{2\ 304}$)°W. _____
    Clue: …and it's not even in Egypt!
20. (2 baker's dozen)°S and (Roman numeral CL)°E. _____
    Clue: I don't think Michael was born here!

WHERE IN THE WORLD: INDEX

VALUE THE POSITION

All the questions in this task are based on the respective value of each digit in the following number.

14 256, 83

Each answer is represented by a letter. Find your answer below the dashes at the bottom of the page, on each dash fill in the applicable letter. This will reveal a well-known quotation.

1. Find the product of the value of the 5 and the value of the 6. (Y) _____
2. Find the difference between the value of the 2 and the value of the 5. (F) _____
3. Find the quotient if the value of the 6 is divided by the value of the 3. (I) _____
4. Find the sum of the value of the 2 and the value of the 5. (N) _____
5. Find the product of the value of the 2 and the value of the 8. (R) _____
6. Divide $\frac{1}{2}$ the value of the 1 by the value of the 5. (T) _____
7. Find the product of the value of the 8 and Roman numeral D. (U) _____
8. Increase the value of the 5 by Roman numeral CXXX. (E) _____
9. Add four decades to the square root of the value of the 1. (C) _____
10. Find 3 times the value of the 5 and add it to the value of the 2. (A) _____

___ ___ / ___ ___ / ___ ___ ___ ___ ___ / ___ ___ ___ / ___ ___ ___ ‘ ___ /

200 150 / 350 100 / 150 200 160 **S** 100 / 300 O 400 / D O 250 / 100 /

___ ___ ___ ___ ___ ___ ___ / ___ ___ ___ ,/ ___ ___ ___, / ___ ___ ___ ,/

S 400 140 140 180 180 D / 100 160 300 ,/ 100 160 300 ,/ 100 160 300 ,/

___ ___ ___ ___ ___ !

350 G 350 200 250

NAME IT

Identify the following angles, triangles and shapes. Choose your answer from the selection given.

ACUTE ∠ ; REFLEX ∠ ; OBTUSE ∠ ; RIGHT ∠ ; STRAIGHT ∠ ;
3 DIMENSIONAL FIGURE; 2 DIMENSIONAL FIGURE; EQUILATERAL Δ ;
SCALENE Δ ; ISOSCELES Δ ; RIGHT-ANGLE Δ ; REVOLUTION;
TRIANGLE; OBTUSE ANGLED Δ ; ACUTE ANGLED Δ

1. An angle of 180°. _____
2. A three sided figure with 3 angles equal to 180°. _____
3. A Δ with 3 sides equal and 3 angles equal. _____
4. A Δ with one angle greater than 90°. _____
5. An angle smaller than 90°. _____
6. A Δ with one angle equal to 90°. _____
7. A shape having length, breadth and height. _____
8. A Δ with 2 sides equal and 2 angles equal. _____
9. An angle greater than 90°. _____
10. A Δ with no sides equal and no angles equal. _____
11. A Δ with no angle greater than 90°. _____
12. A shape having length and breadth. _____
13. An angle of 360°. _____
14. An angle of 90°. _____
15. An angle greater than 180°. _____

MAGIC SQUARE

First complete the questions then fill in your answers on the grid provided, starting at the top and working from left to right. If all your answers are correct you will have created a magic square with all rows, all columns and diagonals giving the same total. As there are 25 blocks and only 20 questions, five numbers have been filled in. Some numbers may be repeated in the grid. Once you have found the answers, complete the magic square. Seven is considered a lucky number. Are you doubly lucky?

1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
11.	12.	13.	14.	**13**
15.	16.	**1**	17.	18.
19.	**2**	20.	**3**	**21**

1. Find the *difference* between 3^3 and $(2^4 - 2)$.
2. ON is to NO as number 1's answer is to …..?
3. *Increase* number 2's answer by the 3rd *prime number* and divide the result by $\frac{1}{2}$ a *dozen*.
4. If number 3's answer is the *divisor* and 11 *dozen* is the *dividend,* find the *quotient.*
5. Look at 4's answer. Take the value of the *tens* digit and divide it by **double the value** of the *units* digit. 6. By how much must you *increase* number 5's answer to get the number of *months* with 31 days?
7. Divide $\sqrt{1156}$ by number 6's answer.
8. *Increase* number 7's answer by the 4th *multiple* of the 2nd *even number.*
9. Find $\frac{1}{3}$ of number 8's answer.
10. Calculate:(Number 9's answer x a *baker's dozen* + number 9's answer) ÷ no. 9's answer.
11. Complete this sequence: 7; number 10's answer; _____ ; 28; 35

12. If number11's answer has the same digits as the number of this question, you are on track.
Now work out the following: Number 11's answer x *XL* ÷ *CCX* ……

13. Now this one is especially **for** you! If no.12's answer is the *time* of day, what time will it be 480 *minutes* later. ……

14. **No**-**on**e needs to worry! *Increase* number 13's answer by $\frac{1}{3}$ of 45. ……

15. Add the *sum* of $2\frac{1}{3} + \frac{1}{6} + \frac{1}{2}$ to number 14's answer and **halve the result.** ……

16. You've completed 15 questions! Only 4 more to go. Now **double** number 15's answer and then subtract the number of *days in a week*. ……

17. Decrease number 16's answer by (2^{nd} prime number)^2.
……

18. If half of no.17's answer is the *length* of a *rectangle* (in metres) and its *breadth* is 5m, find the *perimeter.* ……

19. Find the *sum* of $\frac{1}{2}$ a *millennium*, a *century*, two *decades* and four *years*.
Now *divide* the result by number 18's answer. ……

20. *Increase* **half** of number 19's answer by $\frac{1}{6}$ of 6 *dozen.* ……

WHEN IN ROME

Calculate the following and choose your answer from the selection given. Answer in Roman numerals.

DXXII	$\overline{\text{M}}$	$\overline{\text{V}}$	MDCCC	DCCXX
CLII	C	M	DL	XX

1. LVIII x IX = _____
2. MD ÷ XV = _____
3. (XXXIX ÷ III) + VII = _____
4. XXII + (LXV x II) = _____
5. DLX ÷ LXX x XC = _____
6. XLV ÷ IX x M = _____
7. (XXIV + VI) ÷ III x CLXXX = _____
8. CM x M + $\overline{\text{C}}$ = _____
9. $\overline{\text{V}}$ ÷ C x XI = _____
10. (V + IX + VI) x L = _____

A DOTTY PROBLEM

In this task you must move from dot to dot in order to create a picture. However, the numbers are not sequential. If your answer to number 1 is 54, you start at 54. If your answer to number 2 is 36 you move to 36, and so on. Good luck!

22. 30. 27. 60.

100. 34.

36. 39.

35. 17.

3. 3. 40.

56. 6.

1.

4. 9. 5. 8. 9. 10. 8. 52.

12.

2.

17. 0.

11. 24.

a) $\sqrt{576}$ ÷4 ……. b) 5th prime no. x 2 …… c) 20% of 150 ….. d) $\frac{1}{5}$ of 30 …..

e) $\frac{1}{4}$ of a gross …….. f) 5 score ….. g) 3^3 ….. h) LX …..

i) 0,4 x 85 …… j) $3\frac{1}{4}$ of 12 ….. k) $2\frac{1}{3} + \frac{2}{3}$ ….. l) H.C.F of 24 and 30 …..

m) $3\frac{1}{2}$ decades ……. n) 7,241 + 9,759 ….. o) M ÷ XXV ….. p) 4 baker's dozen …..

q) 1st prime no. …….. r) L.C.M of 3; 8 & 6 ….. s) 1st counting no…… t) 6th odd number …..

u) $2^3 + 3^2$ …….. v) $\frac{1}{5}$ of (5 dozen) ….. w) 1st natural no. ….. x) 4 fortnights …..

y) (Value of Pi) - $\frac{1}{7}$ ….. z)Reciprocal of $\frac{1}{6}$ …..

On the remaining numbers write the following letters: 5 = W; 9 = A; 4 = D; 8 = S and N = 10

CALLING ALL NUMBERS

First answer questions 1 to 20. Each of the answers is to be found in one of the columns below. The letter printed in bold at the end of each question indicates the column in which you will find your answer. For example number 1 has an [**M**] written at the end of the question, so the answer is to be found under **Multiples of 17 .**

M **Multiples of 17**	**F** **Factors of 48**	**P** **Prime Numbers**	**S** **Square Numbers**
323	**48**	**233**	**289**
765	**8**	**71**	**25**
34	**16**	**113**	**256**
68	**24**	**331**	**169**
85	**1**	**19**	**9**
204	**3**	**41**	**484**
136	**4**	**109**	**81**
187	**12**	**17**	**900**

1. If the *Roman numerals* LI and XXXIV are *addends*, find the *sum*. **[M] ……**

2. Let number 1's answer be the *minuend* and 5 *dozen* be the *subtrahend.* Find the *difference* .

   [S] ……

3. *Decrease* number 2's answer by 3^2. **[F] ……**

4. If number 3's answer is the *area* of a *square*, find the length of one side. **[F] ……**

5. What must be added to number 4's answer to give you the 5^{th} *multiple* of 9? **[P] ……**

6. *Increase* no. 5's answer by 3 *centuries* and 2 *decades*. Now find the *square root*. **[P] ……**

7. Let no. 8's answer be the multiplier and (a baker's dozen + 2^2) be the multiplicand. Find

   the product.**[M] ……**

8. Look at no. 9's answer. Now multiply the *value* of the *hundreds* digit by the value of the *units* digit. **[S] …….**

9. *Increase* the <u>*square root*</u> of number 8's answer by $1\frac{1}{2}$ *dozen*. **[F] ……**

10. Let the following number (written in *expanded notation*) [(3 x 1 000) + (4 x 100) +(8 x 1)] be your *dividend* and number 9's answer the *divisor*. Find the *quotient.* **[P] ……**

11. Now complete the following: Number10's answer + ∇ = 2 *score* + 4 *decades*. **[S] …….**

SETS OF SETS

Fill in your answers on the grid provided. If the letter (m) appears at the end of the answer, write it in the box indicated by the letter (m). Once correctly completed, you will find 4 number sequences. Identify the sequences. Choose from the following (Only 4 will match):

- Composite numbers
- Multiples of 17
- Prime numbers
- Factors of 12
- Factors of 21
- Multiples of 5

7	14	21	35	28	EXAMPLE: Multiples of 7
a.	b.	c.	d.	e.	
f.	g.	h.	i.	j.	
k.	l.	m.	n.	o.	
p.	q.	r.	s.	t.	

1. A century ÷ a decade = ... (l)
2. 2 dozen + 1st natural number = ... (o)
3. $\sqrt{1\,024}$ ÷ 2^2 = ... (r)
4. (XXX + V) ÷ VII = ... (c)
5. A great gross ÷ a gross = ... (h)
6. 9th prime number - $4^{2\ =}$ ..... (d)
7. 1st composite number = ... (q)
8. Number of degrees in a right angle ÷ $\sqrt{A\ century}$ = ... (s)
9. A score - 2nd multiple of 9 = ... (a)
10. Baker's dozen - 3^2 = ... (j)
11. Number of sides on an octagon + number of sides on a triangle = ... (b)
12. 1st counting number + $\frac{1}{2}$ a decade = ... (m)
13. 3rd multiple of 12 ÷ $\frac{1}{2}$ a dozen = ... (f)
14. 1st composite number - 1st natural number = ... (g)
15. Decrease 2 dozen by $\sqrt{16}$. ..... (n)
16. A score ÷ a decade = ... (i)
17. 6th prime number + 1st prime number = ... (k)
18. $\sqrt{361}$ - a baker's dozen = ... (t)
19. 3rd multiple of 9 ÷ 3rd multiple of 3 = ...(e)
20. M ÷ X^2 = ... (p)

SUBSTITUTION

Find the values of the letters H, I, J, K, L, M, N and P. Write the numerical values of the letters into the grid below. If you have worked accurately you will arrive at an answer of 20 in the last box on the right.

P	−	J	=	$\sqrt{L}$
÷		−		+
L	+	I	=	H^2
×		+		+
K^3	×	M	=	M
=		=		=
N	×	Q	=	20

H = A great gross ÷ [6 x 10^0] + [7 x 10^1] + [5 x 10^2] _____

I = [$\frac{7}{10}$ - $\frac{1}{5}$] X 10 _____

J = 5% of 120 _____

K = 3^3 - $\sqrt{729}$ + 1 _____

L = 1^{st} natural number x 1^{st} composite number _____

M = MDLXXV ÷ XLV - XXVI _____

N = 0,1 ÷ 0,05 _____

P = Number of degrees in a revolution ÷ number of degrees in $\frac{1}{2}$ a right angle.

_____

Q = For you to find out! _____

3 X TROUBLE

The answer to each sum in column A has a match in column B and in column C. Work out all 60 sums and then record the matching three-somes on the grid provided. The first one has been done for you.

A	B	C
1. No. of degrees in a Δ =180°	1. $3^3 + 1^3$ ___	1. L.C.M. of 2,3 and 7 ___
2. π (Improper fraction) ___	2. C - XX ___	2. 600 x 0,6 ___
3. Sides on a hexagon ___	3. 2 304 x $\frac{3}{4}$ ___	3. 5 + 4 x 4 - 11 ___
4. 4th Composite number ___	4. 20% of 60 ___	4. 91,4 + 7,25 + 45,35 ___
5. No. in a brace ___	5. 3^3 - 17 ___	5. $\sqrt{36} + \sqrt{4}$ ___
6. 20th prime number ___	6. 1,5 ÷ 0,25 ___	6. 3 dozen - $\frac{1}{2}$ a dozen ___
7. No. in 4 score ___	7. No. of $\frac{1}{3}$'s in 3 ___	7. 200 - 1 score = 180
8. No. of years in a century ___	8. 70% of 60 ___	8. H.C.F. of 18,27 & 36 ___
9. No. in a baker's dozen ___	9. $\frac{1}{3}$ of MD ___	9. 2 + 30 x 2 + 9 ___
10. No. of faces on 5 cubes ___	10. $\frac{1}{5}$ of 65 ___	10. Sum of factors of 12 ___
11.Sides on an octagon ___	11. 720 x 0,25 = 180	11. 5^3 – 2 dozen ___
12. No. in a gross ___	12. 197,76 – 53,76 ___	12. LII ÷ XXVI ___
13. 26th prime number ___	13.Average of 6,7,8 &11___	13. $2\frac{1}{2} + \frac{3}{8} + 3\frac{1}{8}$ ___
14. No. in a dozen ___	14. Reciprocal of $\frac{1}{71}$ ___	14. $4\frac{2}{7} - 1\frac{1}{7}$ ___
15.100 + 8 x 40 +80 ___	15. $10^2 + 1^3$ ___	15. $\frac{1}{6} \div \frac{1}{72}$ ___
16 Degrees in a square ___	16. No. of min. in $1\frac{2}{3}$ hr ___	16. $12\frac{1}{2}$ % of 104 ___
17. No. of days in 6 weeks ___	17. 19 + $\frac{1}{2}$ x 12 + 5 ___	17. 5th multiple of 16 ___
18. No. in a great gross ___	18. $1\frac{4}{7}$ x 14 ___	18. No. of ml in $\frac{1}{2}$ litre ___
19. Days in 2 fortnights ___	19. $\sqrt{3600}$ + CCC ___	19. 12^3 ___
20. No. years in a decade ___	20. 1st prime number ___	20. 9,92 x 10 + 0,8 ___

FUN FOLLOW-ON

Work carefully as each question is dependent on the preceding answer.

1. How many Maths words are spelled incorrectly in the following sequence?

   complimentary; angels; consequtive; geometry; parralell; milennium. _____

2. Multiply your answer by the total number of sides on a triangle, a kite, an octagon and a hexagon. _____

3. Divide your answer by the number of days in $1\frac{1}{2}$ fortnights. _____

4. Find the sum of number 3's answer, a baker's dozen, a score and $\frac{1}{2}$ a dozen. _____

5. W A S P is to P A W S as 2 134 is to what number? Add this number to your previous answer. _____

6. If 541 is a prime number divide your answer by 3, if not divide by 9. _____

7. Decrease your answer by the number of faces on 2 dodecahedrons. _____

8. Divide your answer by the number of months with 31 days. _____

9. Increase your answer by LXVII. _____

10. Decrease your answer by the 26^{th} prime number. _____

My answer is palindromic. Is yours?

.

AREA, PERIMETER AND VOLUME

Calculate each of the following. References: Area, Perimeter, Volume, Circle.

1. Area of a square with a side equal to 5cm. _____
2. Area of a rectangle with a length of 14cm and a breadth of 2cm. _____
3. Perimeter of a rectangle with a length of 10cm and a breadth of 5cm. _____
4. Perimeter of a square with a side measuring 6cm. _____
5. Perimeter of an equilateral triangle with a side measuring 70mm. _____
6. Area of a Δ with a base measurement of 10cm and a height of 12cm. _____
7. The volume of a cube with a side measurement of 11cm. _____
8. The perimeter of a square if its area is $144cm^2$. _____
9. Volume of a rectangular prism with length= 6cm, breadth= 4cm and height = 3cm. _____
10. Area of a circle with a radius of 7cm. _____

The following numbers appear in your answers. Cross them off as you go. There should be none remaining when you have finished.

1; 1; 1; 1; 2; 2; 2; 2; 2; 3; 3; 3; 4; 4; 4; 5; 5; 6; 7; 8; 8; 0; 0; 0

CROSSWORD REVISION

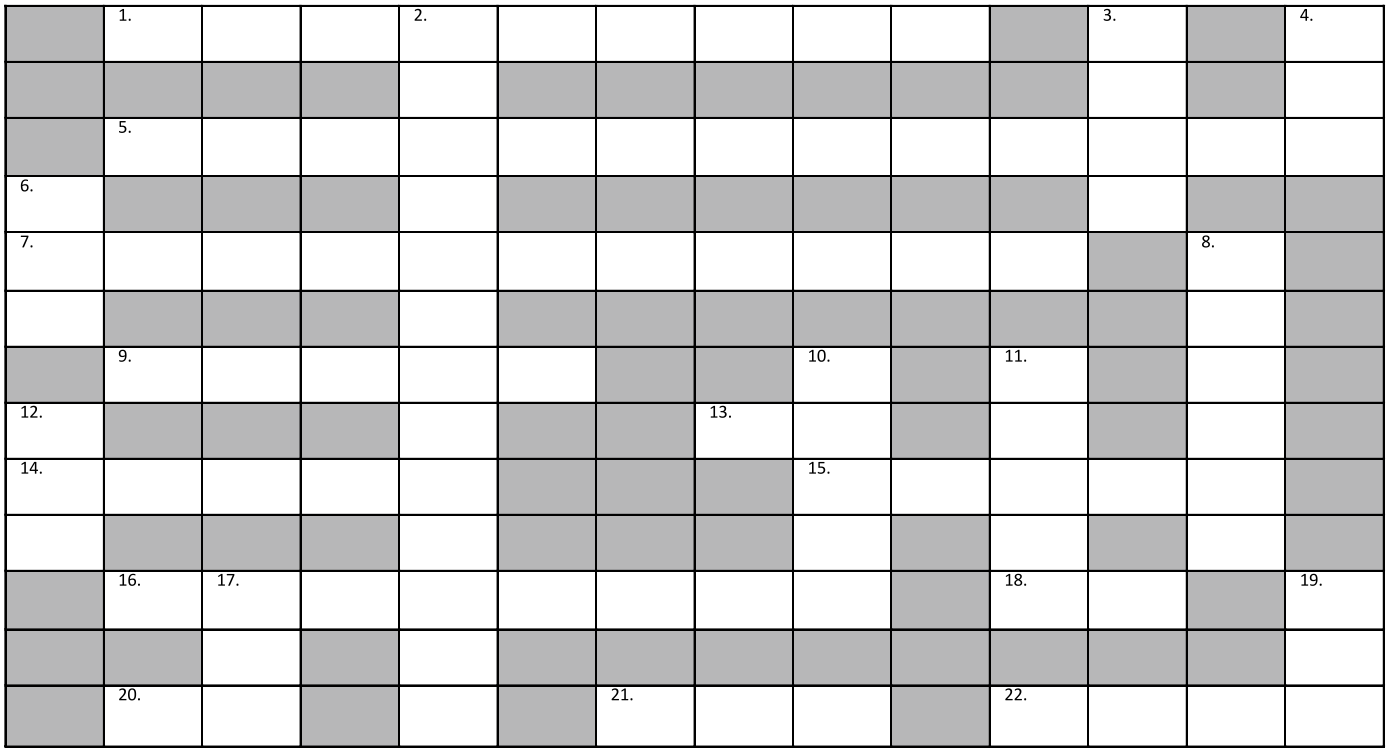
Let's see how much you know. Find the answers to the clues below and fill them in on the grid provided.

Clues Across

1. I have 3 sides, 2 of which are equal.
5. I am one of 2 angles which add up to 90°.
7. I have 3 sides all of which are equal.
9. I only have 2 factors, one and myself.
13. I am the symbol π
14. I'm normally twelve, but to a baker I'm 13.
15. I am 14 Across squared.
16. I am an angle of 180°
18. I'm a prefix. I stand for two.
20. Like 18 Across, I'm also a prefix for 2.
21. I'm a graph, but you can't eat me!
22. Any number multiplied by me is nought.

Clues Down

2. I am one of 2 angles which add up to 180°.
3. My other name is "average".
4. I have one end point, the other goes on forever
6. I am a decagon, so I have … sides.
8. I am an ∠ and I am > than 90° but < than 180°
10. I am an angle of 90°
11. I join two points on a circle.
12. I'm weird. I'm never divisible by two.
17. I am a prefix for three.
19. I am the only even prime number.



DAWSAN'S

Maths

EXPRESS

S. Edwards & D. Williams

Answers

1. WHAT OPERATION?

Looking at the examples below, find the name given to each of the amounts according to their operational position.

MULTIPLIER	1st ADDEND	SUBTRAHEND	DIVISOR
2nd ADDEND	MULTIPLICAND	PRODUCT	QUOTIENT
DIFFERENCE	SUM	DIVIDEND	MINUEND

2 361 → 1st Addend
\+ 946 → 2nd Addend
3 307 → **Sum**

13 201 → Minuend
\- 5 624 → Subtrahend
7 577 → Difference

2 411 → Multiplicand
X 3 → Multiplier
7 233 → Product

1 541 → Quotient
Divisor ← 4 | 6 164 → Dividend

Now calculate the following:

1. Multiplier + 30 = 3 + 30 = 33
2. 1st Addend - 29 = 2 361 - 29 = 2 332
3. Subtrahend + 41 = 5 624 + 41 = 5 665
4. Product - 6 = 7 233 - 6 = 7 227
5. Quotient + 10 = 1 541 + 10 = 1 551
6. Minuend + 30 = 13 201 + 30 = 13 231
7. Multiplicand + 31 = 2 411 + 31 = 2 442
8. Dividend - 48 = 6 164 - 48 = 6 116
9. Difference - 20 = 7 577 - 20 = 7557
10. Divisor x 222 = 4 x 222 = 888

If all your answers are palindromic you have possibly scored 100%!

2. IN ORDER PLEASE!

Arrange the following in the order specified. Refer to your dictionary for the words as given or refer to Special Words.

ASCENDING ORDER:

1. Millennium	Brace
2. Gross	Pi
3. Pi	Decade
4. Dozen	Dozen
5. Score	Baker's Dozen
6. Great Gross	Score
7. Century	Century
8. Brace	Gross
9. Baker's Dozen	Millennium
10. Decade	Great Gross

DESCENDING ORDER:

1. 3rd multiple of 5.	3rd multiple of 15
2. 5th even number.	7th odd number
3. Highest factor of 24 (excluding 24).	Highest factor of 24 (excluding 24)
4. 7th odd number.	5th prime number
5. 5th prime number.	5th even number
6. Only even prime number.	Highest factor of 18 (excluding 18)
7. 1st counting number.	4th prime number
8. 4th prime number.	Only even prime number
9. Highest factor of 18 (excluding 18).	1st natural number
10. 1st natural number.	1st counting number

If the sum of B's answers is equal to 4 score, you're spot on!
15 + 13 + 12 + 11 + 10 + 9 + 7 + 2 + 1 + 0 = 80

3. NAMING NUMBERS

Match each definition with a set of numbers.

DEFINITIONS:

1. Factors of 16.	g)
2. Multiples of 4 between 10 and 30.	e)
3. First five prime numbers.	c)
4. Numbers divisible by 17.	b)
5. Roman numerals represented by one letter.	a)
6. Odd numbers	j)
7. Consecutive numbers.	f)
8. Multiples of 6 and 4.	h)
9. Even numbers.	d)
10. Numbers divisible by 8.	i)

SETS OF NUMBERS:

a) 5; 10; 50; 100; 500; 1 000; …
b) 34; 51; 68; 85; 102; …
c) 2; 3; 5; 7; 11
d) 2; 4; 6; 8; 10; …
e) 12; 16; 20; 24; 28
f) 12; 13; 14; 15; 16; 17; …
g) 1; 2; 4; 8; 16
h) 12; 24; 36; 48; 60; …
i) 16; 24; 32; 40; 48; …
j) 1; 3; 5; 7; 9; 11; …

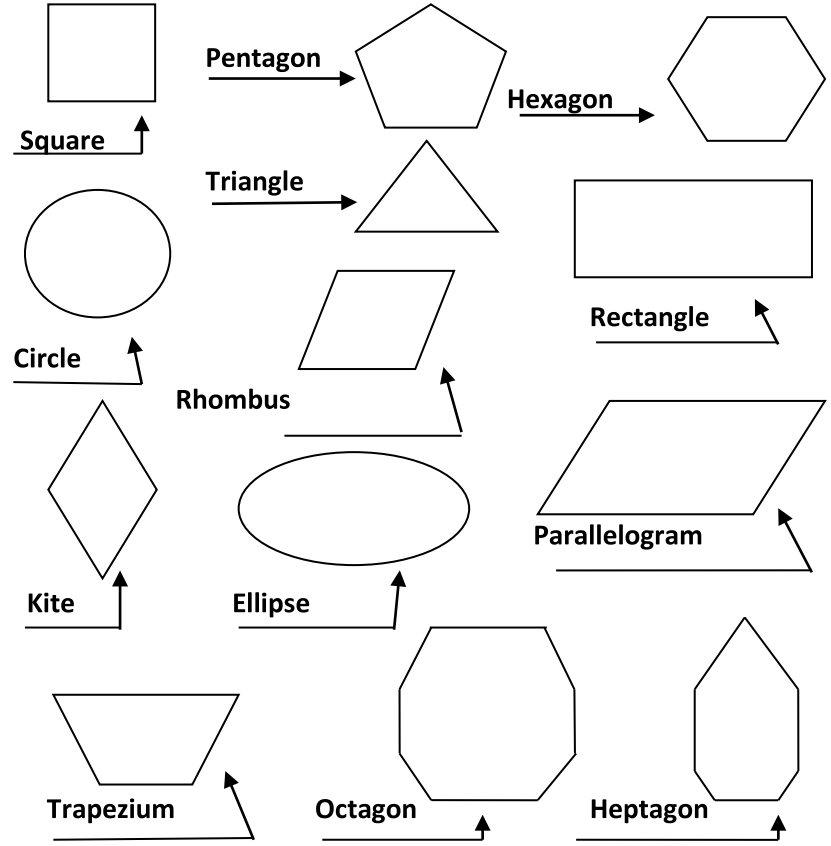
4. IDENTIFICATION

NAME	PROPERTIES
1. Equilateral Δ	Δ all angles equal, all sides equal.
2. Acute ∠	An angle $< 90°$
3. Obtuse ∠	An angle $> 90°$
4. Right-angled Δ	One of the angles = 90°
5. Reflex ∠	An angle $>$ 180°
6. Isosceles Δ	Two angles equal; two sides equal
7. Straight ∠	An angle of 180°
8. Right angle	An angle of 90°
9. Scalene Δ	No angles equal; no sides equal
10. Revolution	An angle of 360°

5. SHAPING-UP

From the selection of answers given, identify each of the following shapes.
Refer to **QUADRILATERALS** and **POLYGONS.**

CIRCLE	RECTANGLE	HEPTAGON	KITE	PARALLELOGRAM
TRAPEZIUM	ELLIPSE	RHOMBUS	OCTAGON	TRIANGLE
SQUARE	HEXAGON	PENTAGON		



6. DO AS THE ROMANS DO

Calculate the following and choose your answer from the selection given in the box below. (Answer in Roman numerals).

M	XL	D	MM	$\overline{X}$	LXXX
XXVI	$\overline{XI}$		DCL		LII

1) XX x IV = 80 = LXXX

2) DXX ÷ XX = 26 = XXVI

3) CC + D - L = 650 = DCL

4) (CL + L) x V = 1 000 = M

5) D x IV ÷ L = 40 = XL

6) IX + VIII + XXXV = 52 = LII

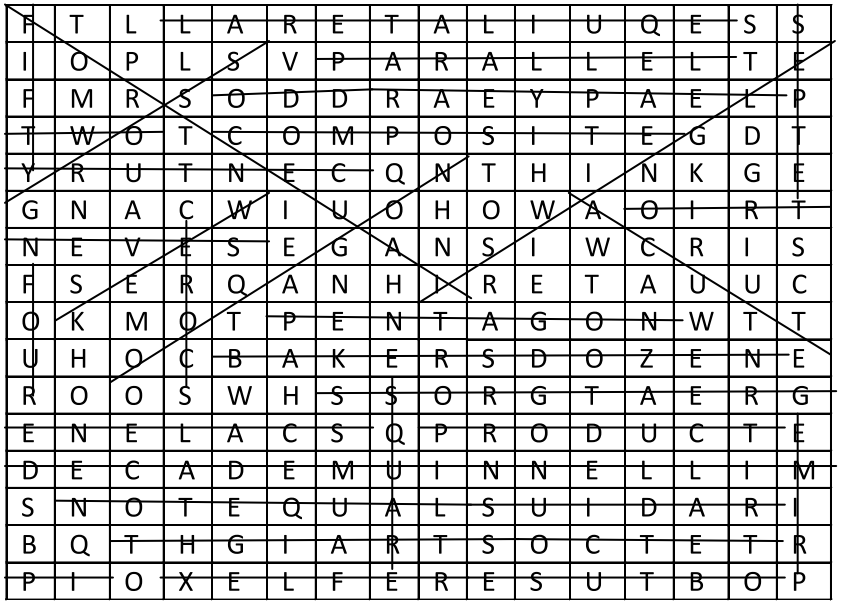
7) CCL x IV - D = 500 = D

8) D x II + CM + C = 2 000 = MM

9) M x (IX + I) = 10 000 = $\overline{X}$

10) (X + I) x M = 11 000 = $\overline{XI}$

7. SEARCH FOR THE WORD



F	T	L	L	A	R	E	T	A	L	I	U	Q	E	S	S
I	O	P	L	S	V	P	A	R	A	L	L	E	L	T	E
F	M	R	S	O	D	D	R	A	E	Y	P	A	E	L	P
T	W	O	T	C	O	M	P	O	S	I	T	E	G	D	T
Y	R	U	T	N	E	C	Q	N	T	H	I	N	K	G	E
G	N	A	C	W	I	U	O	H	O	W	A	O	I	R	T
N	E	V	E	S	E	G	A	N	S	I	W	C	R	I	S
F	S	E	R	Q	A	N	H	I	R	E	T	A	U	U	C
O	K	M	O	T	P	E	N	T	A	G	O	N	W	T	T
U	H	O	C	B	A	K	E	R	S	D	O	Z	E	N	E
R	O	O	S	W	H	S	S	O	R	G	T	A	E	R	G
E	N	E	L	A	C	S	Q	P	R	O	D	U	C	T	E
D	E	C	A	D	E	M	U	I	N	N	E	L	L	I	M
S	N	O	T	E	Q	U	A	L	S	U	I	D	A	R	I
B	Q	T	H	G	I	A	R	T	S	O	C	T	E	T	R
P	I	O	X	E	L	F	E	R	E	S	U	T	B	O	P

1. A period of a thousand years. Millennium
2. A group of seven people. Septet
3. 12 gross. Great Gross
4. A triangle with equal sides and equal angles. Equilateral
5. A polygon with 8 sides. Octagon
6. A period of 10 years. Decade
7. Special name for the number 20. Score
8. A polygon with 3 sides. Triangle
9. A period of 14 days. Fortnight
10. 12 dozen. Gross
11. Special name for one more than a dozen. Baker's dozen
12. A quadrilateral with all sides equal. Square
13. A period of 366 days. Leap year
14. A polygon with 5 sides. Pentagon
15. A period of 100 years. Century
16. Name for the symbol π. Pi
17. Numbers with only two factors, 1 and itself. Prime
18. A group of 3 people. Trio
19. Numbers with more than two factors. Composite
20. A period of 7 days. Week
21. An angle greater than 180°. Reflex
22. Value of Roman numeral L. Fifty
23. Number of months with 31 days. Seven
24. Number in a brace. Two
25. The meaning of the symbol II. Parallel
26. Any number NOT divisible by 2. Odd
27. An angle smaller than 90°. Acute
28. An angle of 180°. Straight
29. A triangle with no sides equal, no angles equal. Scalene
30. Name given to the answer of a multiplication sum. Product
31. Meaning of the symbol $\neq$. Not equal
32. Distance from centre of a circle to circumference. Radius
33. An angle greater than 90° Obtuse
34. Number of right angles in a square. Four
35. A group of eight musicians. Octet

8. MAKING PROGRESS

Complete each progression by filling in the next two elements in each set. Refer to: Prefixes, Special words, Appendix: Tables of measure – British, Roman numerals and Time.

1. year; decade; century ; millennium.
2. uni; bi; tri; tetra; pent; sex/hex.
3. I ; V ; X ; L ; C; D
4. Inches; feet; yards; furlong; mile
5. Solo; duet; trio; quartet; quintet
6. Triangle; quadrilateral; pentagon; hexagon; heptagon
7. Second; hour; day; week; fortnight
8. Gills; pints; quarts; gallon; bushel
9. $\overline{X}$; $\overline{L}$; $\overline{C}$; $\overline{D}$; $\overline{M}$
10. Twins; triplets; quadruplets; quintuplets; sextuplets

9. VITAL PLACE VALUE

All the questions in this task are based on the respective value of each digit in the following number:

125 648

1. The value of the 2 divided by the value of the 4.
   20 000 ÷ 40 = 500 (T)
2. The product of the value of the 8 and the value of the 4.
   8 x 40 = 320 (R)
3. The difference between the value of the 6 and the value of the 4.
   600 - 40 = 560 (A)
4. The value of the 1 divided by the value of Roman numeral M.
   100 000 ÷ 1 000 = 100(G)
5. The value of the 6 divided by the first prime number.
   600 ÷ 2 = 300 (S)
6. The product of the value of the 8 and Roman numeral XX.
   8 x 20 = 160 (B)
7. The sum of $\frac{1}{2}$ the value of the 6 and $\frac{1}{4}$ of the value of the 4.
   300 + 10 = 310 (U)
8. Add 100 to (the value of the 1 ÷ by the value of the 5).
   100 000 ÷5 000 +100 = 120 (O)
9. (The sum of the value of the 4 and the value of the 8), x by V .
   (40 + 8) x 5 = 240 (I)
10. Half the value of the 5, divided by half the value of the 4.
    2 500 ÷ 20 = 125 (N)
11. The value of the 2 divided by C.
    20 000 ÷ 100 = 200 (H)

BRIGHT AS A BUTTON!

10. AREA AND PERIMETER

1. Perimeter = 4cm x 5cm = 20cm
   Area = 5cm x 5cm = $25cm^2$

2. Perimeter = (6cm + 2cm) x 2 = 16cm
   Area = 6cm x2cm = $12cm^2$

3. Perimeter = 2 + 4 + 6 + 2 + 8 + 6 = 28cm
   Area of A = 2cm x 6cm + $12cm^2$
   Area of B = 6cm x 2cm + $12cm^2$
   TOTAL area = $12cm^2 + 12cm^2 = 24cm^2$

4. Perimeter = 3 + 4 + 3 + 2 + 3 + 4 + 3 + 10 = 32cm
   Area of A = 3cm x 10cm = $30cm^2$
   Area of B = 3cm x 2cm = $6cm^2$
   TOTAL area = $30cm^2 + 6cm^2 = 36cm^2$

5. Perimeter of outer rectangle = (6m + 5m) x 2 = 22m
   Perimeter of inner square = 3m x 4 = $12m^2$
   Area of outer rectangle = 6m x 5m = $30m^2$
   Area of inner square = 3m x 3m = $9m^2$
   Area of shaded section = $30m^2 – 9m^2 = 21m^2$

11. ORDER OF OPERATIONS

Match each equation with a numerical description found in the box below. You MUST apply the rules for the Order of Operations.

GROSS; MILLENNIUM; DECADE; BAKER'S DOZEN; SCORE THREE DOZEN; NUMBER OF MONTHS WITH 31 DAYS; CENTURY; NUMBER OF DAYS IN A FORTNIGHT; NUMBER OF DAYS IN A LEAP YEAR;

1. 11 + 2 x 3 - 4 = 11 + 6 - 4 = 13 Baker's dozen
2. 12 x 2 + 48 ÷ 4 = 24 + 12 = 36 Three dozen
3. (20 + 5) x 4 + 4 x 11 = 25 x 4 + 44 = 144 Gross
4. 15 + 2 x 6 ÷ 4 - 11 = 15 + 3 - 11 = 7 No. of months 31 days
5. 24 ÷ 3 x 2 + $\sqrt{16}$ = 8 x 2 + 4 = 20 Score
6. 18 + 12 x 5 + (2 x11) = 18 + 60 + 22 = 100 Century
7. 10 x 5 ÷ 2 x 40 = 50 ÷ 2 x 40 = 1 000 Millennium
8. $\sqrt{144}$ ÷ 2 x 60 + 6 = (12 ÷ 2 x 60) + 6 = 366
   No. of days in a leap year
9. 2 + 36 ÷ 4 x 2 - 6 = 2 + (9 x 2) - 6 = 14 Fortnight
10. 5 x (1 + 3) ÷ 2 = 5 x 4 ÷ 2 = 10 Decade

12. WHAT'S THE NAME ?

Using the words given below, find a name given to describe each of the following sets of numbers.

RATIONAL	EVEN	COMPOSITE
PALINDROMIC	PRIME	ODD
COUNTING	CONSECUTIVE	ORDINAL
NATURAL		

1. 2; 3; 5; 7; 11; 13; … — Prime numbers
2. 2; 4; 6; 8; 10; 12; … — Even numbers
3. 11; 232; 5665; 18 281; … — Palindromic numbers
4. 0; 1; 2; 3; 4; … — Counting numbers
5. 1; 3; 5; 7; 9; … — Odd numbers
6. 27; 28;29; 30;31; 32; … — Consecutive numbers
7. 1^{st}; 2^{nd}; 3^{rd}; 4^{th}; 5^{th}; … — Ordinal numbers
8. 4; 6; 8; 9; 10; 12; 14; 15; … — Composite numbers
9. 1; 2; 3; 4; 5;… — Natural numbers
10. $\frac{1}{2}$; 0,15; 0,9; 1; 1,5; $2\frac{1}{2}$; … — Rational numbers

13. VERY MIXED NUMBERS!

Questions:

1. $\sqrt{625}$ + 2^3 + $\frac{1}{2}$ of 12^2 — 25 + 8 + 72 = 105
2. A millennium ÷ 10^2 x 7,5 — 1 000 ÷ 100 x 7,5 = 75
3. $\frac{1}{4}$ of 180 x (0,75 + $2\frac{1}{4}$) — 45 x 3 = 135
4. 3^3 x (1,35 + 0,65) — 27 x 2 = 54
5. $\frac{1}{2}$ x 4^3 + $\sqrt{256}$ — ($\frac{1}{2}$ x 64) + 16 = 48
6. ($\frac{35}{4}$ x $\frac{4}{5}$)^2 + (1st natural number) — 72 + 1 = 50
7. ($\sqrt{156{,}25}$ + $\frac{5}{2}$) x 2^4 ÷ 10 — ($12\frac{1}{2}$ + $2\frac{1}{2}$) x 16 ÷ 10 = 24
8. (The reciprocal of $\frac{1}{4}$) x $5\frac{1}{4}$ + 4^3 — 4 x $\frac{21}{4}$ + 64 = 85
9. ($2\frac{1}{4}$ + $\frac{7}{4}$) x 3^2 ÷ 2^2 — 4 x 9 ÷ 4 = 9
10. (1st composite number)2 - 2^2 — 42 - 4 = 12

Answers:

a) $\sqrt{28\,561}$ - 68 x 0,5 — 169 – 34 = 135
b) 10^2 - (3^{rd} multiple of 5) — 100 – 15 = 85
c) 0,24 x (12^2 - 11 x 4) — 0,24 x 100 = 24
d) 10^2 + 5 — 100 + 5 = 105
e) 8^2 + (5^{th} prime number) — 64 + 11 = 75
f) 2^6 - 4^2 — 64 - 16 = 48
g) $\sqrt{3\,025}$ - 1^4 — 55 - 1 = 54
h) $10\frac{7}{9}$ - $1\frac{7}{9}$ — 9
i) (1 score)^2 ÷ 5^2 - 2^2 — 400 ÷ 25 - 4 = 12
j) 5^2 + $\sqrt{625}$ — 25 + 25 = 50

Matching pairs: 1(d); 2(e); 3(a); 4(g); 5(f); 6(j); 7(c); 8(b); 9(h); 10(i)

14. SHAPE AND SIZE

Using the clues given below, name the geometrical shape. (References: Quadrilaterals, Time, Polygons, Prefixes and Special Words).

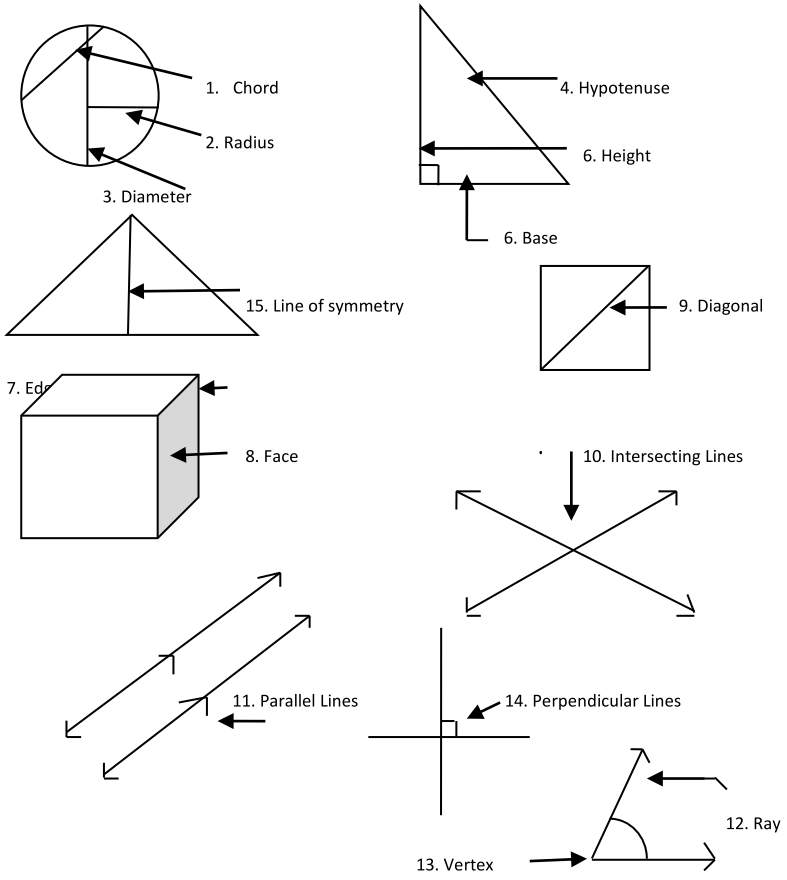
TRIANGLE; HEPTAGON; OCTAGON; NONAGON; SQUARE; HEXAGON; PENTAGON; DECAGON; DODECAHEDRON; QUINDECAHEDRON

1. (4) Square has the same number of sides as the number of months with 30 days.
2. (20 ÷ 4 = 5) Pentagon has the same number of sides as a score divided by 4.
3. (144 ÷ 48) Triangle has the same number of sides as a gross divided by 4 dozen.
4. (13 - 4) Nonagon has the same number of sides as a baker's dozen minus the no. of sides on a quadrilateral.
5. (6) Hexagon has the same number of sides as the reciprocal of $\frac{1}{6}$.
6. (1728 ÷ 144 - 5 = 7) Heptagon has the same number of sides as a great gross divided by a gross minus $\frac{1}{2}$ a decade.
7. (4 + 3 + 2 + 6 = 15) Quindecahedron has the same number of faces as the total number of people in a quartet, a trio, a duet and a sextet.
8. (2 + 1 + 5) Octagon has the same number of sides as the sum of the 1st prime number, the 1st natural number and the 3rd odd number.
9. (12) Dodecahedron has the same number of faces as the number of hours from 8 am to 8 pm.
10. (10th) Decagon has the same number of sides as the ordinal number of this question.

15. GEOMETRIC TERMS

Using the words given in the box below, identify the following geometric terms.

RAY; DIAGONAL; EDGE; VERTEX; HYPOTENUSE; PARALLEL LINES; FACE; LINE OF SYMMETRY; CHORD; RADIUS; INTERSECTING LINES; PERPENDICULAR; DIAMETER; HEIGHT; BASE



16. PROBLEMATIC PROGRESSIONS

Fill in the next two numbers in each of the progressions. The first six are straight forward, thereafter you may have to make some calculations. (References: Square root, Powers, Fibonacci Sequence, Prime Numbers, Composite Numbers, Roman Numerals).

1) 2; 3; 5; 7; 11; 13; 17 (Prime Numbers)

2) 1; 1; 2; 3; 5; 8; 13; 21; 34 (Fibonacci Sequence)

3) 4; 6; 8; 9; 10; 12; 14; 15 (Composite Numbers)

4) 1; 4; 9; 16; 25; 36; 49 (Square Numbers)

5) 2; 4; 8; 16; 32; 64; 128 (Powers of 2)

6) V; X; XV; XX; XXV; XXX; XXXV (Multiples of 5)

7) 7; 9; 12; 14; 17; 19; 22; 24 (Alternately +2;+3)

8) I; II; IV; VII; XI; XVI; XXIV; XXIX (Adding consecutive nos.)

9) 100; 51; $26\frac{1}{2}$; $14\frac{1}{4}$; $7\frac{1}{8}$; $3\frac{9}{16}$ (Half previous answer + 1)

10). 100; 99,5; 98,5; 97; 95; 92,5; 89,5 (Minus $\frac{1}{2}$; minus 1; minus $1\frac{1}{2}$; …)

17. OPERATIONAL POSITION

Using your dictionary and referring to the examples below, identify each amount according to its operational position and then complete the questions that follow.

14 625 + 355 = 14 980	15 625 - 5400 = 10 225
2 683 x 25 = 67 075	31 950 ÷ 15 = 2 130

1. (Difference ÷ Multiplier) - 5 = 10 225 ÷ 25 – 5 = 404

2. (1^{st} Addend - Subtrahend) + 4 = 14 625 – 5 400 + 4 = 9 229

3. (Quotient x Multiplier) - 15 = 2 130 x 25 – 15 = 53 235

4. (Dividend + Product) + 74 = 31 950 + 67 075 +74 = 99 099

5. (Divisor x Multiplicand) - 41 = 15 x 2 683 – 41 = 40 204

6. (Difference + Sum) + 47 = 10 225 +14 980 + 47 = 25 252

7. (Sum ÷ Multiplier) - 4,2 = 14 980 ÷ 25 – 4,2 = 595

8. (Minuend - Sum) + 1 = 15 625 - 14 980 + 1 = 646

9. (Dividend ÷ 2^{nd} Addend) + 9 = 31950 ÷ 355 + 9 = 99

10. (Product - Difference + Quotient) + 5 =

67 075 – 10 225 + 2 130 + 5 = 58 985

IF ALL YOUR ANSWERS ARE PALINDROMIC YOU HAVE POSSIBLY SCORED 100% !

18. WHERE IN THE WORLD?

In order to identify each of the following places, you must first find the co-ordinates. Thereafter, read the clue and then refer to the index . If there is a connection between the clue and the name of the place, you are right!

Example: (3 dozen - 2^1)°S and (2 centuries - $\sqrt{625}$)°E. That is 34°S and 175°E.

Clue: From the orient are? **Answer**: Three Kings (New Zealand).

1. ($4\frac{1}{2}$ decades)°N and (5th composite number)°E.
   45°N 10°E Hamburg
   Clue: McDonalds don't give you a full meal here.
2. ($\sqrt{196}$)°N and (10^2)°E.
   14°N 100°E Bangkok
   Clue: They shot the rooster!
3. (0,6 ÷ 0,12)°N and ($\frac{1}{6}$ of 3 score)°E.
   5°N 10°E Bare
   Clue: A nudist colony!
4. (11th multiple of 1st composite number)°N and ($\sqrt{13\ 225}$)°W.
   44°N 115°W Boise
   Clue: A city of bachelors?
5. (20% of 70)°N and (11^2)°E.
   14°N 121°E Taal
   Clue: Is their language Afrikaans?
6. (0,1 0f 420)°N and ($\frac{1}{3}$ of 279)°W.
   42°N 93°W Marshalltown
   Clue: Far too many outlaws in this place!
7. (Number of sides on 3 pentagons)°N and (3 dozen)°E.
   15°N 36°E Gosh
   Clue: Oh my word!
8. (12th multiple of 2nd prime number)°N and (2 score)°W.
   36°N 40°W Dollar
   Clue: But their currency is pounds!
9. ($\frac{2}{3}$ of an hour)°S and (25% 0f 700)°E.
   40°S 175°E Bulls
   Clue: But they should be 'All Blacks' supporters!
10. (13th prime number)°S and ($1\frac{3}{4}$ of a century)°E.
    41°S 175°E Greytown
    Clue: You'll find a mixture of black and white here!
11. (Roman Numerals: XXV x II)°N and ($\sqrt{13\ 456}$)°W.
    50°N 116°W Kicking Horse
    Clue: Strong stable-hands urgently required!
12. (2^5 + 2^1)°N and ($\frac{1}{3}$ of 240)°E.
    34°N 80°E Florence
    Clue: The home of a famous nurse?
13. (16th prime number)°N and (Number of days in a fortnight)°E.
    53°N 14°E Oder
    Clue: A smelly place?
14. (7th multiple of 7 - 2^3)°N and (6th composite number)°E.
    41°N 12°E Rome
    Clue: People just drift around in this place.
15. (4 dozen - $\sqrt{16}$)°N and ($\frac{1}{3}$ of 165)°W.
    44°N 55°W Newfoundland
    Clue: A place just recently discovered?
16. (Number of sides on 6 kites)°S and (20% of 140)°E.
    24°S 28°E Warmbaths
    Clue: No cold showers!
17. (5 decades - $\frac{1}{2}$ a decade)°N and (1 century – 4th prime number)°W. 45°N 93°W Stillwater
    Clue: No rapids here!
18. (Double the 9th prime number)°N and (10 dozen)°E.
    46°N 120°E Richland
    Clue: There is no poverty in this place.
19. (14th prime number – 6th counting number)°N and ($\sqrt{2\ 304}$)°W.
    38°N 48°W Pyramid Pk
    Clue: …and it's not even in Egypt!
20. (2 baker's dozen)°S and (Roman numeral CL)°E.
    26°S 150°E Jackson
    Clue: I don't think Michael was born here!

19. VALUE THE POSITION

14 256, 83

Each answer is represented by a letter. Find your answer below the dashes at the bottom of the page, on each dash fill in the applicable letter. This will reveal a well-known quotation.

1. Find the product of the value of the 5 and value of the 6.

   50 x 6 = 300 (Y)

2. Find the difference between the value of the 2 and the value of the 5.

   200 – 50 = 150 (F)

3. Find the quotient if the value of the 6 is divided by the value of the 3.

   6 ÷ 0,03 = 200 (I)

4. Find the sum of the value of the 2 and the value of the 5.

   200 + 50 = 250 (N)

5. Find the product of the value of the 2 and the value of the 8.

   200 x 0,8 = 160 (R)

6. Divide $\frac{1}{2}$ the value of the 1 by the value of the 5.

   5 000 ÷ 50 = 100 (T)

7. Find the product of the value of the 8 and Roman numeral D. 0,8 x 500 = 400 (U)

8. Increase the value of the 5 by Roman numeral CXXX.

   50 + 130 = 180 (E)

9. Add four decades to the square root of the value of the 1.

   40 + 100 = 140 (C)

10. Find 3 times the value of the 5 and add it to the value of the 2.

    150 + 200 = 350 (A)

IF AT FIRST YOU DON'T SUCCEED, TRY, TRY, TRY, AGAIN!

20. NAME IT

Identify the following angles, triangles and shapes . Choose your answer from the selection given.

1. An angle of 180°. Straight Angle
2. A three sided figure with 3 angles equal to 180°. Triangle
3. A Δ with 3 sides equal and 3 angles equal. Equilateral Triangle
4. A Δ with one angle greater than 90°. Obtuse Angled Δ
5. An angle smaller than 90°. Acute angle
6. A Δ with one angle equal to 90°. Right angled Δ
7. A shape having length, breadth and height. 3 Dimensional
8. A Δ with 2 sides equal and 2 angles equal. Isosceles Δ
9. An angle greater than 90°. Obtuse angle
10. A Δ with no sides equal and no angles equal. Scalene Δ
11. A Δ with no angle greater than 90°. Acute angled Δ
12. A shape having length and breadth. Two dimensional
13. An angle of 360°. Revolution
14. An angle of 90°. Right angle
15. An angle greater than 180°. Reflex angle

21.MAGIC SQUARE

1. **13**	2. **31**	3. **6**	4. **22**	5. **5**
6. **2**	7. **17**	8. **33**	9. **11**	10. **14**
11. **21**	12. **4**	13. **12**	14. **27**	13
15. **15**	16. **23**	1	17. **14**	18. **24**
19. **26**	2	20. **25**	3	21

1. Find the *difference* between 3^3 and $(2^4 - 2)$. $27 - 14 = 13$

2. ON is to NO as number 1's answer is to …..? 13 is to 31

3. *Increase* number 2's answer by the 3rd *prime number* and divide the result by $\frac{1}{2}$ a *dozen*. $(31 + 5) \div 6 = 36 \div 6 = 6$

4. If number 3's answer is the *divisor* and 11 *dozen* is the *dividend,* find the *quotient.* $132 \div 6 = 22$

5. Look at number 4's answer. Take the value of the *tens* digit and divide it by **double the value** of the *units* digit. $20 \div 4 = 5$

6. By how much must you *increase* number 5's answer to get the number of *months* with 31 days? $5 + 2 = 7 \quad \therefore 2$

7. Divide $\sqrt{1156}$ by number 6's answer. $34 \div 2 = 17$

8. *Increase* number 7's answer by the 4th *multiple* of the 2nd *even number.* $17 + 16 = 33$

9. Find $\frac{1}{3}$ of number 8's answer. $\frac{1}{3} \times 33 = 11$

10. Calculate:(Number 9's answer x a *baker's dozen* + number 9's answer) ÷ no. 9's answer. $(11 \times 13 + 11) \div 11 = 14$

11. Complete this sequence: 7; number 10's answer; _____ ; 28; 35
7; 14; **21**; 28; 35

12. If number11's answer has the same digits as the number of this question, you are on track. Now work out the following: Number 11's answer x *XL* ÷ *CCX* $21 \times 40 \div 210 = 4$

13. Now this one is especially **for** you! If number 12's answer is the *time* of day, what time will it be 480 *minutes* later.
(8 hours) 12 o'clock

14. **No-one** needs to worry! *Increase* number 13's answer by $\frac{1}{3}$ of 45.
$12 + 15 = 27$

15. Add the *sum* of $2\frac{1}{3} + \frac{1}{6} + \frac{1}{2}$ to no. 14's answer and **halve the result.**

$$[(2\frac{2}{6} + \frac{1}{6} + \frac{3}{6}) + 27] \div 2 = 30 \div 2 = 15$$

16. You've completed 15 questions! Only 4 more to go. Now **double** no. 15's answer and then subtract the number of *days in a week*.
$15 \times 2 - 7 = 23$

17. Decrease number 16's answer by (2nd prime number)^2.
$23 - 3^2 = 23 - 9 = 14$

18. If half of no.17's answer is the *length* of a *rectangle* (in metres) and its *breadth* is 5m, find the *perimeter.* $(7 + 5) \times 2 = 24$m

19. Find the *sum* of $\frac{1}{2}$ a *millennium*, a *century*, two *decades* and four *years*. Now *divide* the result by number 18's answer.
$(500 + 100 + 20 + 4) \div 24 = 26$

20. *Increase* **half** of no. 19's answer by $\frac{1}{6}$ of 6 *dozen.* $13 + 12 = 25$

TOTAL: 77

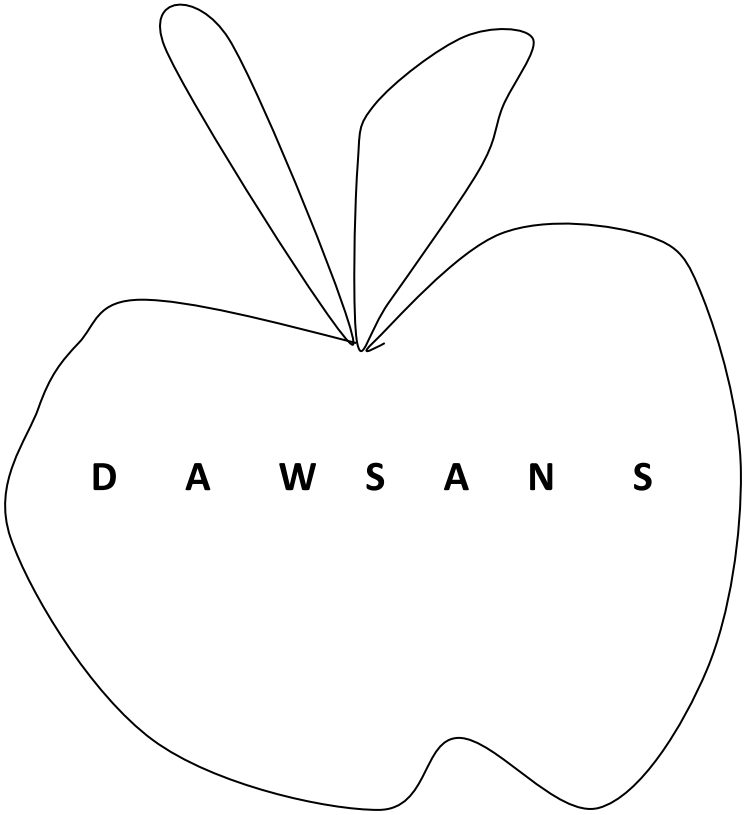
22. WHEN IN ROME

Calculate the following and choose your answer from the selection given. Answer in Roman numerals.

DXXII	$\overline{M}$	$\overline{V}$	MDCCC	DCCXX
CLII		C	M	DL	XX

1. LVIII x IX = 58 x 9 = 522 = DXXII
2. MD ÷ XV = 1 500 ÷ 15 = 100 = C
3. (XXXIX ÷ III) + VII = 39 ÷ 3 + 7 = 20 = XX
4. XXII + (LXV x II) = 22 + (65 x 2) = 22 + 130 = CLII
5. DLX ÷ LXX x XC = 560 ÷ 70 x 90 = 720 = DCCXX
6. XLV ÷ IX x M = 45 ÷ 9 x 1 000 = 5 000 = $\overline{V}$
7. (XXIV + VI) ÷ III x CLXXX = (24 + 6) ÷ 3 x 180 = 1 800 = MDCCC
8. CM x M + $\overline{C}$ = 900 x 1 000 + 100 000 = $\overline{M}$
9. $\overline{V}$ ÷ C x XI = 5 000 ÷100 x 11= 550 = DL
10. (V + IX + VI) x L = (5 + 9 + 6) x 50 = 1 000 = M

23. A DOTTY PROBLEM



a) $\sqrt{576}$ ÷4= 6
b)5th prime number x 2 = 22
c)20% of 150 =30
d)$\frac{1}{5}$ of 30 = 6
e) $\frac{1}{4}$ of a gross =36
f)5 score = 100
g) 3^3 = 27
h) LX = 60
i) 0,4 x 85 = 34
j)$3\frac{1}{4}$ of 12 = 39
k)$2\frac{1}{3}$ + $\frac{2}{3}$ = 3
l)H.C.F of 24 and 30 = 6
m) $3\frac{1}{2}$ decades = 35
n)7,241 + 9,759 = 17
o)M ÷ XXV = 40
p)4 baker's dozen = 52
q) Only even prime no. = 2
r)L.C.M of 3; 8 and 6 = 24
s)1st counting no.= 0
t)6th odd no. = 11
u)$2^3 + 3^2$ = 17
v)$\frac{1}{5}$ of (5 dozen) = 12
w)1st natural no. = 1
x)4 fortnights = 56
y) (Value of Pi) - $\frac{1}{7}$ = 3
z)Reciprocal of $\frac{1}{6}$ = 6

24.CALLING ALL NUMBERS

1. If *Roman numerals* LI and XXXIV are *addends*, find the *sum*. **[M]**

51 + 34 = 85

2. Let number 1's answer be the *minuend* and 5 dozen be the *subtrahend.* Find the *difference* .**[S]** **85 – 60 = 25**

3. *Decrease* number 2's answer by 3^2. **[F]** **25 – 9 = 16**

4. If no. 3's answer is the area of a square, find the length of one side. [F]

$\sqrt{16}$ = 4

5. What must be added to number 4's answer to give you the 5^{th} *multiple* of 9? **[P]** **41 + 4 = 45**

6. *Increase* no. 5's answer by 3 *centuries* and 2 *decades*. Now find the *square root*. **[P]** $\sqrt{361}$ **= 19**

7. Let no. 8's answer be the multiplier and (a baker's dozen + 2^2) be the multiplicand. Find the product.**[M]** **17 x 19 = 323**

8. Look at no. 9's answer. Now multiply the *value* of the *hundreds* digit by the value of the *units* digit. **[S]** **300 x 3 = 900**

9. *Increase* the ***square root*** of no.8's answer by $1\frac{1}{2}$ *dozen*. **[F]**

$\sqrt{900}$ **+ 18 = 48**

10. Let the following no. [(3 x 1 000) + (4 x 100) +(8 x 1)]be the *dividend* and no. 9's answer the *divisor*. Find the *quotient.* **[P]**

3 408 ÷ 48 = 71

11. Now complete the following: No.10's answer + ∇ = 2 *score* + 4 *decades*. **[S]** **71 +9 = 80**

12. Let no. 11's answer be the *numerator* and 2 less than a *dozen* be the *denominator*. Find this fraction of $1\frac{1}{2}$ *hours*. Write your answer as *minutes*. **[S]** $\frac{9}{10}$ **x 90 = 81**

13. *Increase* no.12's answer by the number of sides on 3 *hexagons*, 4 *octagons* and 1 *pentagon*. **[M]** **81+18+32+5 = 136**

14. *Decrease* no.13's answer by the total no. of *degrees* in a *right* ∠ and $\frac{1}{2}$ a *right* ∠. **[F]** **136 - 135 = 1**

15. Now complete this *Fibonacci sequence:*

No. 14's answer; no. 14's answer; 2; 3; 5; 8; 13; 21; **[M]** **34**

16. *Increase* $\frac{1}{4}$ of the value of number 15's answer by the *decimal fraction* 8,5. **[P]** **8,5 + 8,5 = 17**

17. If no. 16's answer is the length of one side of a *rhombus*, find the *area*. **[S]** **17 x 17 = 289**

18. What number must be subtracted from no.17's answer to give the *no. of degrees in a triangle*? **[P]** **289– 109 = 180**

19. *Decrease* no.18's answer by (9^2 + 4^2). **[F]** **109 – 97 = 12**

20. If no.19's answer is hours, add $\frac{3}{4}$'s of an *hour*. How many *minutes*? **[M]**

765

25. SETS OF SETS

7	14	21	35	28	**EXAMPLE:** Multiples of 7
a. 2	b. 11	c. 5	d. 7	e. 3	Prime numbers
f. 6	g. 3	h. 12	i. 2	j. 4	Factors of 12
k. 15	l. 10	m. 5	n. 20	o. 25	Multiples of 5
p. 10	q. 2	r. 8	s. 9	t. 6	Composite numbers

1. A century ÷ a decade = 100 ÷ 10 = 10 (l)
2. 2 dozen + 1st natural number = 24 + 1 = 25 (o)
3. $\sqrt{1\ 024}$ ÷ 2^2 = 32 ÷ 4 = 8 (r)
4. (XXX + V) ÷ VII = 35 ÷ 7 = 5 (c)
5. A great gross ÷ a gross = 1728 ÷ 144 = 12 (h)
6. 9th prime number - 4^2 = 23 – 16 = 7 (d)
7. 2nd natural number = 2 (q)
8. No. of degrees in a right angle ÷ $\sqrt{A\ century}$ = 90 ÷ 10 = 9 (s)
9. A score - 2nd multiple of 9 = 20 – 18 = 2 (a)
10. Baker's dozen - 3^2 = 13 – 9 = 4 (j)
11. No. of sides on an octagon + no. of sides on a triangle = 8 + 3 = 11 (b)
12. 1st counting number + $\frac{1}{2}$ a decade = 0 + 5 = 5 (m)
13. 3rd multiple of 12 ÷ $\frac{1}{2}$ a dozen = 36 ÷ 6 = 6 (f)
14. 1st composite no. - 1st natural no. = 4 – 1 = 3 (g)
15. Decrease 2 dozen by $\sqrt{16}$. 24 – 4 = 20 (n)
16. A score ÷ a decade = 20 ÷ 10 = 2 (i)
17. 6th prime no. + 1st prime no. = 13 + 2 = 15 (k)
18. $\sqrt{361}$ - a baker's dozen = 19 – 13 = 6 (t)
19. 3rd multiple of 9 ÷ 3rd multiple of 3 = 27 ÷9 = 3 (e)
20. M ÷ X^2 = 1 000 ÷ 100 = 10 (p)

26. SUBSTITUTION

P	8	-	J	6	=	$\sqrt{L}$	2
	÷			-			+
L	4	+	I	5	=	H^2	9
	x			+			+
K^3	1	x	M	9	=	M	9
	=			=			=
N	2	x	Q	10	=	**20**	

H = A great gross ÷ $[6 \times 10^0] + [7 \times 10^1] + [5 \times 10^2]$
1 728 ÷ 576 = 3

I = $[\frac{7}{10} - \frac{1}{5}] \times 10 = \frac{5}{10} \times 10 = 5$

J = 5% of 120 = $\frac{5}{100} \times 120 = 6$

K = $3^3 - \sqrt{729} + 1 = 27 - 27 + 1 = 1$

L = 1st natural no. x 1st composite no. 1 x 4 = 4

M = MDLXXV ÷ XLV - XXVI 1 575 ÷ 45 - 26 = 9

N = 0,1 ÷ 0,05 = 10 ÷ 5 = 2

P = No. of degrees in a revolution ÷ no. of degrees in $\frac{1}{2}$ a right angle. 360 ÷ 45 = 8

Q = For you to find out! 10

27. 3 X TROUBLE

A. 1	B. 11	C.7.	180
A. 2	B. 18	C. 14	$\frac{22}{7}$
A. 3	B. 6	C. 13	6
A.4	B. 7	C. 8	9
A.5	B. 20	C. 12	2
A.6	B. 14	C.9	71
A. 7	B. 2	C. 17	80
A. 8	B.16	C. 20	100
A. 9	B. 10	C. 16	1
A. 10	B. 17	C. 6	30
A. 11	B. 13	C. 5	8
A.12	B. 12	C. 4	144
A. 13	B. 15	C. 11	101
A. 14	B. 4	C. 15	12
A. 15	B. 9	C. 18	500
A. 16	B. 19	C. 2	360
A. 17	B. 8	C. 1	42
A. 18	B. 3	C. 19	1 728
A. 19	B. 1	C. 1	28
A. 20	B. 5	C. 3	10

28. FUN FOLLOW-ON

1. How many words are spelled incorrectly in the following sequence?
   Complimentary; angels; consequtive; geometry; parralell; milennium. 5.

2. Multiply your answer by the total number of sides on a triangle, a kite, an octagon and a hexagon.
   5 x (3 + 4 + 8 + 6) = 21 x 5 = 5 x 21 = 105

3. Divide your answer by the number of days in $1\frac{1}{2}$ fortnights.
   105 ÷ 21 = 5

4. Find the sum of number 3's answer, a baker's dozen, a score and $\frac{1}{2}$ a dozen. 5 + 13 + 20 + 6 = 44

5. W A S P is to P A W S as 2 134 is to what number? Add this no. to your previous answer. 4 123 + 44 = 4 167

6. If 541 is a prime no. divide your answer by 3, if not divide by 9.
   4167 ÷ 3 = 1 389

7. Decrease your answer by the number of faces on 2 dodecahedrons. 1 389 – 24 = 1 365

8. Divide your answer by the no. of months with 31days.
   1365 ÷ 7 = 195

9. Increase your answer by LXVII. 195 + 67 = 262

10. Decrease your answer by the 26th prime number.
    262 – 101 = 161

My answer is palindromic. Is yours?

29. AREA, PERIMETER AND VOLUME

Calculate each of the following. References: Area, Perimeter, Vo

lume,Circle

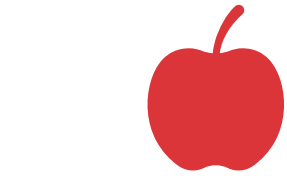
1. Area of a square with a side equal to 5cm. $5 \times 5 = 25cm^2$
2. Area of a rectangle with a length of 14cm and a breadth of 2cm. $14 \times 2 = 28cm^2$
3. Perimeter of a rectangle with a length of 10cm and a breadth of 5cm. $2l + 2b = 20 + 10 = 30$cm
4. Perimeter of a square with a side measuring 6cm. 4×6cm = 24cm
5. Perimeter of an equilateral triangle with a side measuring 70mm. 3×70mm = 210 mm
6. Area of a Δ with a base measurement of 10cm and a height of 12cm. $\frac{1}{2}b \times h = 5cm \times 12cm = 60cm^2$
7. The volume of a cube with a side measurement of 11cm. $11 \times 11 \times 11 = 1\ 331cm^3$
8. The perimeter of a square if its area is $144cm^2$. $4 \times \sqrt{144} = 4 \times 12 = 48$cm
9. Volume of a rectangular prism with length= 6cm, breadth= 4cm and height = 3cm. $6 \times 4 \times 3 = 72cm^3$
10. Area of a circle with a radius of 7cm. $\pi r^2 = \frac{22}{7} \times \frac{49}{1} = 154cm^2$

The following numbers appear in your answers. Cross them off as you go. There should be none remaining when you have finished.

1; 1; 1; 1; 2; 2; 2; 2; 2; 3; 3; 3; 4; 4; 4; 5; 5; 6; 7; 8; 8; 0; 0; 0

30. CROSS-WORD REVISION

■	1. I	S	O	2. S	C	E	L	E	S	■	3. M	■	4. R
■	■	■	■	U	■	■	■	■	■	■	E	■	A
■	5. C	O	M	P	L	E	M	E	N	T	A	R	Y
6. T	■	■	■	P	■	■	■	■	■	■	N	■	■
7. E	Q	U	I	L	A	T	E	R	A	L	■	8. O	■
N	■	■	■	E	■	■	■	■	■	■	■	B	■
■	9. P	R	I	M	E	■	■	10. R	■	11. C	■	T	■
12. O	■	■	■	E	■	■	13. P	I	■	H	■	U	■
14. D	O	Z	E	N	■	■	■	15. G	R	O	S	S	■
D	■	■	■	T	■	■	■	H	■	R	■	E	■
■	16. S	17. T	R	A	I	G	H	T	■	18. D	I	■	19. T
■	■	R	■	R	■	■	■	■	■	■	■	■	W
■	20. B	I	■	Y	■	21. P	I	E	■	22. Z	E	R	O



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