RIGOUR

by cdmasterworks Ltd

Numeracy for Learning, Life and Work

August National 5 Maths Calendar

#abitofmathseveryday

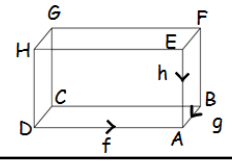
1 Evaluate...

$$64^{\frac{1}{2}}$$

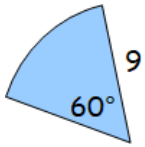
2 Calculate...

$$4\frac{3}{7} - 1\frac{1}{10}$$

3 Express $\overrightarrow{FD}$ in terms of **f**, **g** and **h**.



4 Calculate the length of this minor arc (take π as 3·14)...



5 Factorise...

$$5n^2 - 2n - 3$$

6 Calculate the semi-interquartile range of the following data set...

101, 98, 92, 97, 91, 95, 96, 90

7 Find the equation of the line passing through (-1, 3) and (2, -6).

8 Write the following in it's simplest index form...

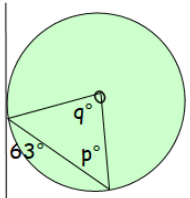
$$\frac{x^{\frac{1}{3}} \times x^{\frac{5}{3}}}{x^2}$$

9 Express the following with a rational denominator and simplify if required...

$$\frac{32}{\sqrt{2}}$$

10 A jeep is bought for £36 000. The value of the caravan depreciates at a rate of 9% for the first year and 2% in the second year. Calculate the value of the jeep after 2 years.

11 What are the sizes of p and q?



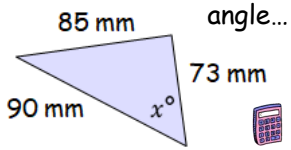
12 Solve the following equation...

$$2x - 3 = \frac{x + 23}{4}$$

13 Determine the gradient and the y-intercept of the following equation...

$$5x + 9y = 18$$

14 Calculate the size of the missing angle...



15 Change the subject of the formula to b...

$$a = \frac{b^2}{c} + d$$

16 Solve the equation

$4 \tan x° + 7 = 6$

for $0 \leq x \leq 360$.

17 A function is defined as

$$f(x) = x^2 - 4x$$

Find $f(-5)$.

18 Write the following in the form...

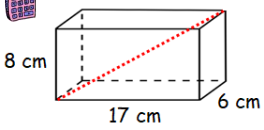
$$(x + a)^2 + b.$$

$$x^2 - 14x + 9$$

19 Express this fraction in it's simplest form...

$$\frac{3w + 15}{w^2 - 3w - 40}$$

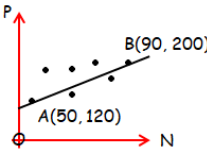
20 For this cuboid, calculate the length of the space diagonal.



21 Multiply out the following brackets and simplify...

$$(3x - 4)(x^2 - 8x - 9)$$

22 Calculate the equation of the line of best fit.

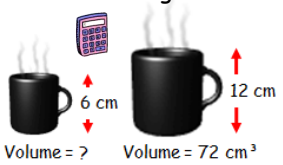


23 Find the coordinates of the turning point of the parabola with equation...

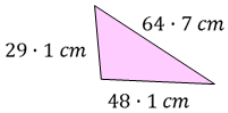
$$y = x^2 - 4x - 60$$

24 A laptop computer is reduced by 10% in the summer sales and now costs £252. How much did it cost before the sale started?

25 Calculate the missing volume...



26 Determine whether this triangle is right angled...



27 Calculate the standard deviation of the following data set...

2, 9, 12, 29

28 Solve

$2x^2 + 7x - 8 = 0$

giving your solutions to 1 decimal place...

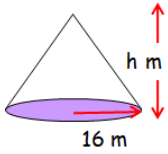
29 Solve the following system of equations...

$$10x + 3y = 19$$
$$5x + 2y = 1$$

30 Divide the following fractions...

$$\frac{2u^3}{15} \div \frac{u}{3}$$

31 The volume of this cone is 7234·56 cm³.



Calculate it's radius...