RIGOUR

by cdmasterworks Ltd

Numeracy for Learning, Life and Work

June National 5 Maths Calendar

#abitofmathseveryday

1 A function is defined as $f(x) = x^2 - 7x$

Find $f(-2)$.

2 Evaluate...

$$100^{\frac{1}{2}}$$

3 Write the following in the form...

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

$x^2 - 8x + 10$

4 A mobile phone is reduced by 30% in the summer sales and now costs £175.

How much did it cost before the sale started?

5 Find the equation of the line passing through (-2, -3) and (1, 9).

6 Change the subject of the formula to f...

$$e = \frac{f^2}{g} - h$$

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

$$\frac{x^{\frac{1}{3}} \times x^{\frac{8}{3}}}{x^2}$$

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

$$\frac{2z + 10}{z^2 - 2z - 35}$$

9 Solve the following system of equations...

$$2x + 5y = 18$$
$$3x - 2y = -11$$

10 Solve $2x^2 + 6x - 3 = 0$ giving your solutions to 1 decimal place...

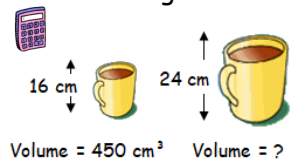
11 Divide the following fractions...

$$\frac{4p^3}{27} \div \frac{p}{6}$$

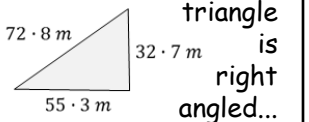
12 Calculate the standard deviation of the following data set...

3, 7, 10, 24

13 Calculate the missing volume...



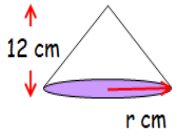
14 Determine whether this triangle is right angled...



15 Solve the following equation...

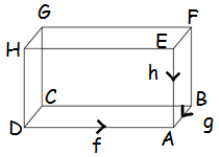
$$2x - 5 = \frac{x + 11}{2}$$

16 The volume of this cone is 803·84 cm³.



Calculate it's radius...

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



18 Calculate...

$$3\frac{1}{4} - 1\frac{2}{5}$$

19 Factorise...

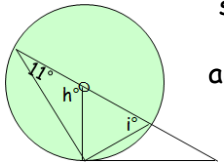
$7d^2 - 2d - 5$

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

$3x + 7y = 28$

21 A caravan is bought for £40 000. The value of the caravan depreciates at a rate of 8% for the first year and 5% in the second year. Calculate the value of the caravan after 2 years.

22 What are the sizes of h and i?



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

6, 10, 12, 14, 17, 24, 25, 27

24 Multiply out the following brackets and simplify...

$(4x - 9)(x^2 - 3x + 10)$

25 Solve the equation

$9 \tan x° + 3 = 1$

for $0 \leq x \leq 360$.

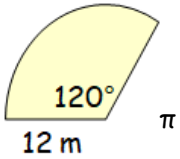
26 Express the following with a rational denominator and simplify if required...

$$\frac{18}{\sqrt{3}}$$

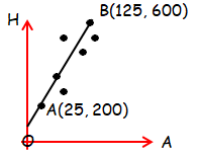
27 Find the coordinates of the turning point of the parabola with equation...

$y = x^2 + 4x - 21$

28 Calculate the length of this minor arc (use π = 3·14)...



29 Calculate the equation of the line of best fit.



30 Calculate the size of the missing angle...