RIGOUR

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Numeracy for Learning, Life and Work

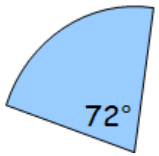
November National 5 Maths Calendar

#abitofmathseveryday

1 Solve the following equation...

$$\frac{x}{4} + \frac{x}{2} = 9$$

2 Calculate the area of this sector...



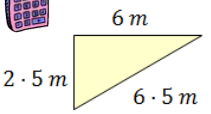
3 Find the equation of the line passing through (1, -2) and (2, 4).

4 Simplify...

$$\sqrt{18} + \sqrt{2} - \sqrt{8}$$

5 A box of cereal is on special offer and contains 600 grams. This is 20% more than the standard box. How many grams does the standard box contain?

6 Determine whether this triangle is right-angled...



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

$$\frac{4x^2 \times 6x^8}{3x^5}$$

8 A function is defined as

$$f(x) = x^2 + 9x$$

Find $f(-2)$.

9 Multiply out the following brackets and simplify...

$$(2x - 7)(x^2 + 4x - 5)$$

10 Calculate the standard deviation for the following data set...

72, 74, 75, 79

11 Solve the following system of equations...

$$3x + 2y = 14$$
$$5x - 3y = 17$$

12 Factorise...

$$3c^2 + 2c - 5$$

13 Calculate...

$$3\frac{1}{3} \div 1\frac{4}{5}$$

14 Change the subject of the formula to r...

$$e = 9r^2 + 1$$

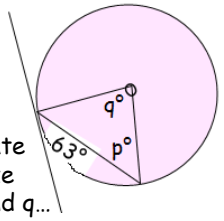
15 Calculate the missing volume...

16 Write the following in the form...

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

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

17 Calculate the size of p and q...



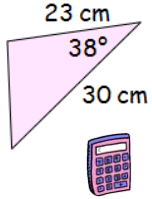
18 Add the following fractions...

$$\frac{5}{(x+3)} + \frac{3}{(x+7)}$$

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

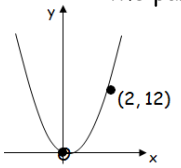
$$\frac{8}{\sqrt{6}}$$

20 Calculate the area of the triangle...



21 How much money will there be in a bank account when £6000 is invested for 3 years at 4·7% per annum?

22 The diagram shows the parabola with equation; $y = kx^2$



What is the value of k?

23 Evaluate...

$$81^{\frac{3}{4}}$$

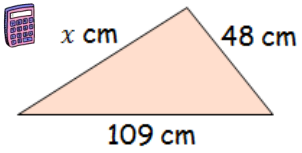
24 Determine the gradient and the y-intercept of the following equation...

$$5x + 3y = 9$$

25 Calculate the semi-interquartile range for the following data set...

8, 14, 12, 7, 16, 15

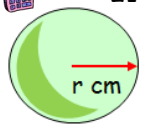
26 Calculate the length of the missing side...



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

$$\frac{x^2 - 36}{x^2 + 3x - 18}$$

28 The volume of this sphere is 2143·57 cm³.



Calculate it's radius...

29 Vector $\mathbf{a} = \begin{pmatrix} 2 \\ 0 \\ 5 \end{pmatrix}$ and vector $\mathbf{b} = \begin{pmatrix} 7 \\ -4 \\ 1 \end{pmatrix}$.

Calculate $|\boldsymbol{a} + \boldsymbol{b}|$.

30 Solve the equation

$$7 \sin x° - 1 = 3$$

for $0 \leq x \leq 360$.