RIGOUR

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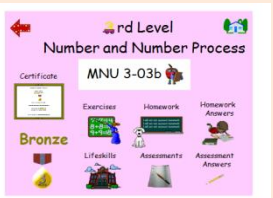
Numeracy for Learning, Life and Work



May National 5 Maths Calendar

#abitofmathseveryday

1 Evaluate...

$$1000^{\frac{2}{3}}$$

2 Write the following in the form...

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

$y = x^2 + 8x - 1$

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

$$\frac{10}{\sqrt{2}}$$

4 Multiply out the following brackets and simplify...

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

5 Calculate...

$$2\frac{1}{4} \div 1\frac{2}{3}$$

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

$$\frac{3x^5 \times 8x^7}{2x^4}$$

7 Find the equation of the line passing through (2, 3) and (6, -9).

8 Vector **a** = $\begin{pmatrix} 1 \\ 0 \\ 2 \end{pmatrix}$ and vector **b** = $\begin{pmatrix} 3 \\ -2 \\ 4 \end{pmatrix}$.

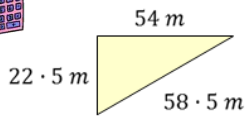
Calculate $|\boldsymbol{a} + \boldsymbol{b}|$.

9 Solve the following system of equations...

$5x + 2y = 33$

$3x + 4y = 17$

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

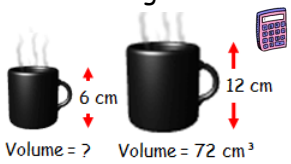


11 Solve $x^2 - 9x + 1 = 0$ giving your solutions to 1 decimal place...

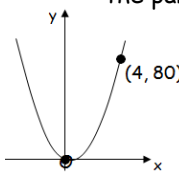
12 Change the subject of the formula to b...

$a = 8b^2 + 3$

13 Calculate the missing volume...



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



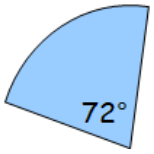
What is the value of k?

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

32, 32, 36, 37, 38

16 A grandfather clock depreciates in value at a rate of 3% p.a. It was worth £800. How much will it be worth in 3 years time?

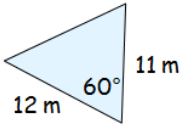
17 Calculate the length of this arc...



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

$$\frac{x^2 - 49}{x^2 + 5x - 14}$$

19

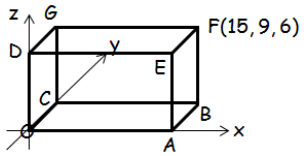


Calculate the area of the triangle...

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

$4x + 9y = 11$

21 What are the coordinates of G?

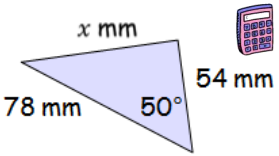


22 A function is defined as

$f(x) = x^2 + 8x$

Find $f(-1)$.

23 Calculate the length of the missing side...



24 Solve the following equation...

$$\frac{x}{3} + \frac{x}{2} = 20$$

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

77, 79, 80, 81, 82, 84, 86

26 Add the following fractions...

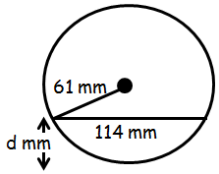
$$\frac{6}{(x+5)} + \frac{2}{(x+4)}$$

27 Solve the equation

$8 \sin x° + 5 = 2$

for $0 \leq x \leq 360$.

28 Find the value of d...

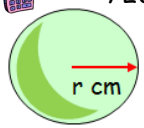


29 Factorise...

$2r^2 - 11r + 15$

30 What are the sizes of the interior and exterior angles?

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



Calculate it's radius...