RIGOUR

by cdmasterworks Ltd

Numeracy for Learning, Life and Work

December National 5 Maths Calendar

#abitofmathseveryday

1 Multiply out the following brackets and simplify...

$(2x + 5)(x - 3) - 7x$

2 Solve the following system of equations...

$5x + 4y = 23$

$2x + 3y = 5$

3 Write the following in the form...

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

$y = x^2 + 6x + 4$

4 An antique watch depreciates in value at a rate of 3·8% p.a. It was worth £400. How much will it be worth in 2 years time?

5

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

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

$\frac{4}{\sqrt{10}}$

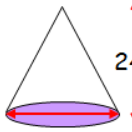
7 Write the following in it's simplest index form...

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

8 Subtract the following fractions...

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

9 Calculate the volume of this cone...



Use π = 3·14

10 Evaluate...

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

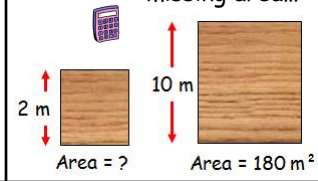
11 Solve the following inequality...

$9 - 2x < 17$

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

2, 5, 8, 10, 11, 11, 11, 14

13 Calculate the missing area...



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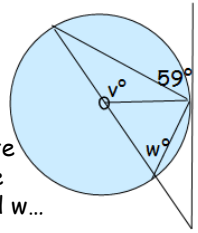
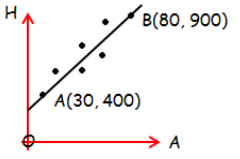


Calculate the size of v and w...

15 Calculate the equation of the line of best fit.

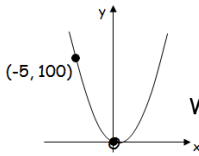


16 Simplify...

$\sqrt{75} + \sqrt{3} - \sqrt{12}$

17 The diagram shows the parabola with equation;

$y = kx^2$



What is the value of k?

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

$a = \frac{\sqrt{b} - 2}{3}$

19 Factorise...

$3x^2 - 48$

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

$\frac{x^2 - 5x}{x^2 - 7x + 10}$

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

63, 65, 66, 67, 69

22 Solve

$x^2 - 8x + 3 = 0$

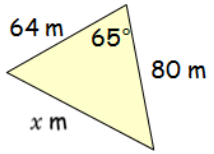
giving your solutions to 1 decimal place...

23 A function is defined as

$f(t) = 4t - 1$

For what value of t does $f(t) = 11$?

24 Calculate the length of the missing side...



25 Round 25 122 017 to 2 significant figures.

26 A pair of trainers are in the sales. The trainers are reduced by 20%. The trainers cost £23·20. How much did they cost before the sale?

27 Solve the equation

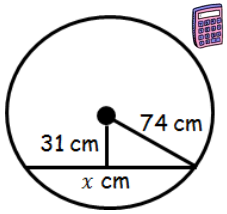
$5 \cos x° + 2 = 1$

for $0 \leq x \leq 360$.

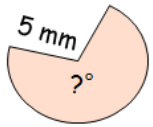
28 Determine the gradient and the y-intercept of the following equation...

$3x - 2y = 4$

29 Find the value of x...



30 The area of this sector is 68·03 cm³.



Calculate the angle...

31 Show that

$sinxtanx = \frac{sin^2 x}{cosx}$