RIGOUR

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Numeracy for Learning, Life and Work

3rd Level Number and Number Process — MNU 3-03b

Certificate · Exercises · Homework · Homework Answers · Bronze · Lifeskills · Assessments · Assessment Answers

January National 5 Maths Calendar

#abitofmathseveryday

1 A house is bought for £120 000. The value of the house appreciates at a rate of 10% for the first year and 8% in the second year. Calculate the value of the house after 2 years.

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

3 Multiply out the following brackets and simplify…
$$(3x - 1)(x^2 - 5x + 4)$$

4 Factorise…
$$5g^2 - 7g - 6$$

5 Solve the following equation…
$$2x - 1 = \frac{x + 3}{4}$$

6 Evaluate…
$$32^{\frac{4}{5}}$$

7 Calculate the median and semi-interquartile range of the following data set…
$$11, 5, 17, 3, 15, 9$$

8 Write the following in it's simplest index form…
$$\frac{x^{\frac{1}{2}} \times x^{\frac{3}{2}}}{x^2}$$

9 Simplify…
$$\sqrt{700} + \sqrt{28} - \sqrt{7}$$

10 Change the subject of the formula to e…
$$h = \frac{e^2}{c} + n$$
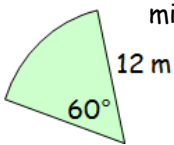
11 Solve the following system of equations…
$$4x + 3y = 5$$
$$3x + 5y = 1$$

12 Write the following in the form…
$$y = (x + a)^2 + b.$$
$$y = x^2 - 10x + 9$$

13 Calculate the length of the minor arc… 12 m, 60°

14 Solve
$$2x^2 + 3x - 4 = 0$$
giving your solutions to 1 decimal place…

15 A television is reduced by 25% in the January sales and now costs £405. How much did it cost before the sale started?

16 Find the equation of the line passing through (3, -1) and (5, 7).

17 Express this fraction in it's simplest form…
$$\frac{y^2 - 121}{y^2 - 8y - 33}$$

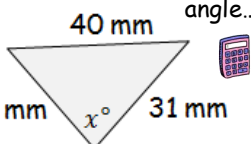**18** Express the following with a rational denominator and simplify if required…
$$\frac{20}{\sqrt{5}}$$

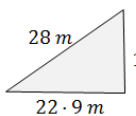**19** Calculate the missing volume… 12 cm, 20 cm, Volume = ?, Volume = 1750 cm³

20 Calculate the size of the missing angle… 40 mm, 33 mm, 31 mm, $x°$

21 Divide the following fractions…
$$\frac{5w^3}{27} \div \frac{w}{3}$$

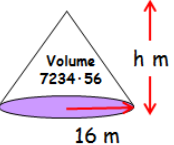**22** Determine whether this triangle is right-angled… 28 m, 15·3 m, 22·9 m

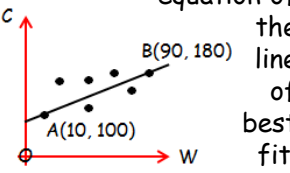**23** Calculate the standard deviation of the following data set…
$$33, 46, 54, 68, 79$$

24 A function is defined as
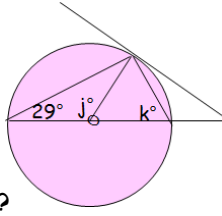$$f(x) = x^2 - 5x$$
Find $f(3)$.

25 The volume of this cone is 7234·56 m³. Volume 7234·56, h m, 16 m. Calculate it's height…
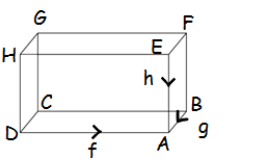
26 Calculate the equation of the line of best fit. C, B(90, 180), A(10, 100), W

27 What are the size of j and k? 29°, j°, k°

28 Express $\overrightarrow{DF}$ in terms of **f**, **g** and **h**. G, F, H, E, C, B, D, A, f, g, h

29 Solve the equation
$$7 \tan x° + 5 = 1$$
for $0 \le x \le 360$.

30 Determine the gradient and the y-intercept of the following equation…
$$2x + 5y = 10$$

31 Find the coordinates of the turning point of the parabola with equation…
$$y = x^2 + 4x - 12$$