BennettMaths
Engaging Learners

Questions

Maths Paper 2 - Higher

Find the nth term of:

$1,3,7,13,21$

Convert $5cm^2$ into mm^2

Convert $6m^2$ into cm^2

Convert $100{,}000cm^2$ into m^2

Solve simultaneously

$$y^2 = x^2 + 5x + 1$$
$$y = 4x + 1$$

Factorise $a^2 - b^2$

Factorise $4a^2 - 16b^2$

Solve simultaneously

$$3x + 4y = 17.5$$
$$2x - y = 2.5$$

When a = $\begin{pmatrix} 4 \\ 3 \end{pmatrix}$ and b = $\begin{pmatrix} 6 \\ -1 \end{pmatrix}$

Work out 3a – 2b

Simplify:

$$\frac{6x^2 - x - 2}{3x^2 + 4x - 4}$$

The point $(3,7)$ lines on the equation $x^2 + y^2 = 58$

Find the equation of tangent that passes through the point $(3,7)$

Leo writes a number on his calculator display.
His screen reads 8.3.
Write down the error interval.

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Examples/ Key words

Maths Paper 2 - Higher

Depreciation – a percentage reduction. Use a multiplier to make the question easier to answer.

Multiplier – e.g. a car cost £10000 and depreciates by 23%.

100% - 23% = 77%

77 ÷ 100 = 0.77

10000 x 0.77 = 7700

Sine rule (missing side) =

$$\frac{a}{\sin(A)} = \frac{b}{\sin(B)}$$

Sine rule (missing angle) =

$$\frac{\sin(A)}{a} = \frac{\sin(B)}{b}$$

Estimate = make the question easier by rounding

Evaluate = work out the answer

Express = Write in the different way

Simplify = Change the appearance

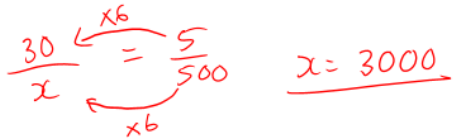
Capture-Recapture

1) Ginny wants to estimate how many fish are in a pond.

On Monday, she captures 30 fish and places a mark on each one. She then returns them to the pond.

The next day she captures 500 fish, 5 of the fish have a mark on them.

Estimate how many fish are in the pond.



Cosine rule (missing side) =

$$a^2 = b^2 + c^2 - 2bc\cos(A)$$

Cosine rule (missing angle) =

$$A = cos^{-1}(\frac{b^2 + c^2 - a^2}{2bc})$$

Error Intervals – If a number has been rounded add and subtract half of the rounding value.

E.g. a number has been rounded to 1 decimal place (0.1).
You would add and subtract 0.05

Boxplots – You need 5 values:
lowest value, lower quartile, median, upper quartile and highest value.

Probability from a Venn diagram.
$A \cup B$= A or B (anything within the 3 sections of the circles
$A \cap B$= A and B (the intersection of the circles)

Percentage profit =

$$\frac{change}{orignal} \times 100$$