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Questions

Maths Paper 3 - Higher

Simplify

$$\frac{2x^2 + 10x - 28}{2x^2 + 19x + 35}$$

$x = 3.2$ when rounded to 1 decimal place
$y = 1.42$ when rounded to 2 decimal place

(a) Work out the LB of xy
(b) Work out the UB of $\frac{x}{y}$

Invest £2000 at 4% compound interest per annum for 3 years.

Work out the total of the investment after 3 years.

The probability of winning a game of snooker is 0.6.
The probability of winning a game of pool is 0.8.
Work out the probability of winning a game of pool and a game of snooker.

Simplify

$$(3x^4y^{-2})^5$$

Work out the gradient of the line

$$12y + 3x = 42$$

Convert 250 cm^2 into mm^2

Convert 250 mm^2 into cm^2

$f(x) = 8x^2$ $\quad$ $g(x) = x + 2$

(a) Work out $gf(3)$
(b) Work out $fg(x)$

$f(x) = 8x^2$ $\quad$ $g(x) = 3x + 2$

(a) Work out $f^{-1}(x)$
(b) Work out $g^{-1}(x)$

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Examples/ Key words

Maths Paper 3 - Higher

Convert 3200 into standard form
$3200 = 3.2 \times 10^3$

Work out $4.2 \times 10^4 + 8 \times 10^3$.
Give your answer in standard form

$42{,}000 + 8000 = 50{,}000$
$50{,}000 = 5 \times 10^4$

The 5 values required for a boxplot are:

- Lowest value
- Lower quartile
- Median
- Upper quartile
- Highest Value

Estimate = make the question easier by rounding

Evaluate = work out the answer

Express = Write in the different way

Simplify = Change the appearance

Volume of a cube = base x height x depth or length^3

Surface area of a cuboid = The sum of the area of the 3 pairs of congruent rectangles

The volume of a shape is $20cm^3$.
The mass of the shape is 120g.
Find the density.
Density = g:cm^3

120:20

6:1

Density = $6g/cm^3$

Angles in regular polygons:
Sum of the interior angles = $(n-2) \times 180$
To find an interior angle = $\frac{total}{n}$ n= number of angles/sides.

Sum of the exterior angles = 360°
To find an exterior angle = $\frac{360}{n}$ n= number of angles/sides

Gradient of a curve = draw tangent of the curve and find the gradient

$$\frac{difference\ in\ y}{difference\ in\ x}$$

When drawing a cumulative frequency graph, use the end point of the range

When drawing a frequency polygon, use the midpoint

Circle Theorem Tips:

- Radius and tangent = 90°
- Radius and chord = alternate segment theorem
- 2 radii = an isosceles triangle