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# Questions

# Maths Paper 2 - Higher

Leo invests £3500 at 6% compound interest per annum. Work out the amount of interest Leo receives after 5 years.

The gradient of a radius of a circle is -3. The tangent to the circle passes through the point (6,2). Work out the equation of the tangent

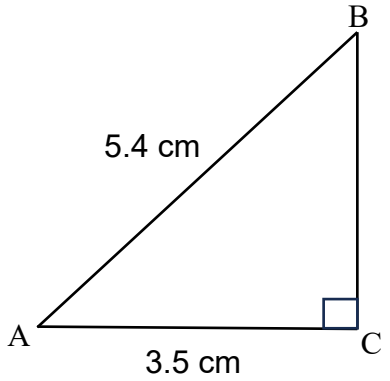
Solve

$3x^2 + 4x - 10 = 0$

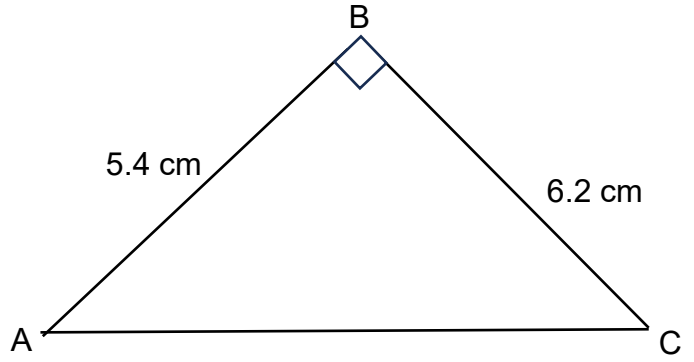
$x = 3.2$ when rounded to 1 decimal place
$y = 1.42$ when rounded to 2 decimal places

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

Work out the length of BC




Work out the size of angle BAC




Simplify

$$\left(\frac{9}{4}\right)^{-\frac{3}{2}}$$

Express 60 as a product of prime factors

Find the LCM of 60 and 90

There are 3 starters, 5 mains and 6 desserts on a menu.

How many different 3 course combinations are possible?

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The price of a shirt has decreased by 30%. It now costs £84.
Work out the original cost

Find the nth term of:

2,8,18,32

Convert $0.4\dot{3}$ into a fraction

Work out the two points that $y = x^2 + 4x + 3$ crosses the $x$-axis

$y$ is directly proportional to $x$.
When $y = 15$ and $x = 30$
Work out the value of $y$ when $x = 5$

$y$ is inversely proportional to $x$.
When $y = 15$ and $x = 30$
Work out the value of $y$ when $x = 5$

A number, n, is rounded to 1d.p.
The result is 43.2.
Complete the error interval

$$\_\_\_ \leq n < \_\_\_$$

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

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

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

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

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# Examples/ Key words

# Maths Paper 2 - 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

Circle Theorem Tips:

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