

Simplify

(a) $p^4 \times p^3$

(b) $p^7 \div p^3$

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

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

Factorise

(a) $x^2 + 8x + 16$

(b) $x^2 - 8x + 7$

Simplify

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

Simplify: $\sqrt{200}$

Rationalise the denominator: $\frac{6}{\sqrt{5}}$

Write down the value of:

(a) $\sin(30)$

(b) $\cos(30)$

Work out $\frac{2}{3} + \frac{6}{8}$

Work out $\frac{2}{5} \times \frac{3}{7}$

Express 60 as a product of prime factors

Find the HCF of 60 and 90

Make x the subject of

$$y + 5 = \frac{3x - 1}{x}$$

Work out $2\frac{2}{3} - \frac{6}{8}$

Work out $2\frac{1}{3} \div \frac{3}{5}$

Simplify

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

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

How many different 3 course combinations are possible?

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

Complete the table

Time (t)	Frequency	Cumulative frequency
$0 \leq t < 1$	5	
$1 \leq t < 2$	8	
$2 \leq t < 3$	1	
$3 \leq t < 4$	12	

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

$$\underline{\quad} \leq n < \underline{\quad}$$

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

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

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

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

Examples/ Key words

Maths Paper 1 - 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 length³

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

	0°	30°	45°	60°	90°
Sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
Cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
Tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	Undefined

Angles in regular polygons:

Sum of the interior angles = $(n - 2) \times 180$
 To find an interior angle = $\frac{\text{total}}{n}$ 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
 $\frac{\text{difference in } y}{\text{difference in } x}$

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

Circle Theorem Tips:

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