SECURING GRADES 7+ TOPIC REVISION

SEQUENCES

Find the nth term of:

3, 9, 17, 27, 39, ……..

STANDARD FORM

Without a calculator, work out:

$$(3 \times 10^5) \times (4 \times 10^{-2})$$

PROOF/ SHOW THAT/ CONGRUENCE

Prove that the sum of three consecutive integers is always a multiple of three.

COORDINATE GEOMETRY

Find the equation of the line joining (2, 7) and (5, 13).

ESTIMATION AND BOUNDS

a) Estimate:

$$\frac{31.7 \times 416.5}{18.6}$$

b) A number y, rounded to two decimal places is 4.13. Write down the error interval for y.

PROBABILITY/ COMBINATIONS

A bag contains 5 red and 7 yellow sweets. Julie takes a sweet at random, eats it, then takes a second sweet and eats it. Find the probability that she eats two yellows.

QUADRATICS/ INEQUALITIES

a) Complete the square:

$$x^2 - 4x + 8$$

b) Hence, find the coordinate of the vertex of:

$$y = x^2 - 4x + 8$$

SIMULTANEOUS EQUATIONS

Solve:

$$2x + 5y = 8$$
$$3x + 7y = 11$$

RATIO AND PROPORTION

A is directly proportional to B.
When A = 28, B = 7.

a) Find an equations for A in terms of B.

b) Find A when B = 12

c) Find B when A = 13

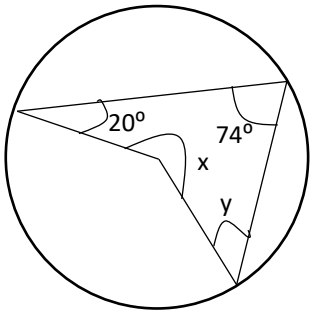
SIMPLIFY/ RE-ARRANGE/ SOLVE

Make x the subject:

$$ax + b = cx + d$$

ANGLES & CIRCLE THEOREMS

Find x and y.



SURDS

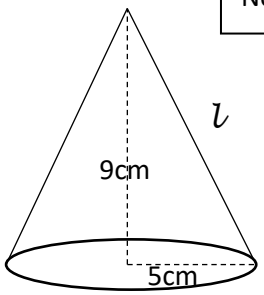
a) Simplify $\sqrt{18}$

b) Hence, simplify $\frac{\sqrt{18}+\sqrt{8}}{\sqrt{200}}$

AREA/ PERIMETER/ VOLUME

Find the surface area of the cone.

Note: curved surface area = $\pi r l$

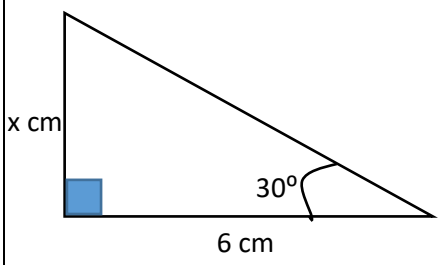


FRACTIONS/ DECIMALS/ RECURRING DECIMALS

Convert $0.4\dot{5}$ to a fraction.

TRIGONOMETRY/ GRAPHS

Without a calculator, find x.



PERCENTAGES

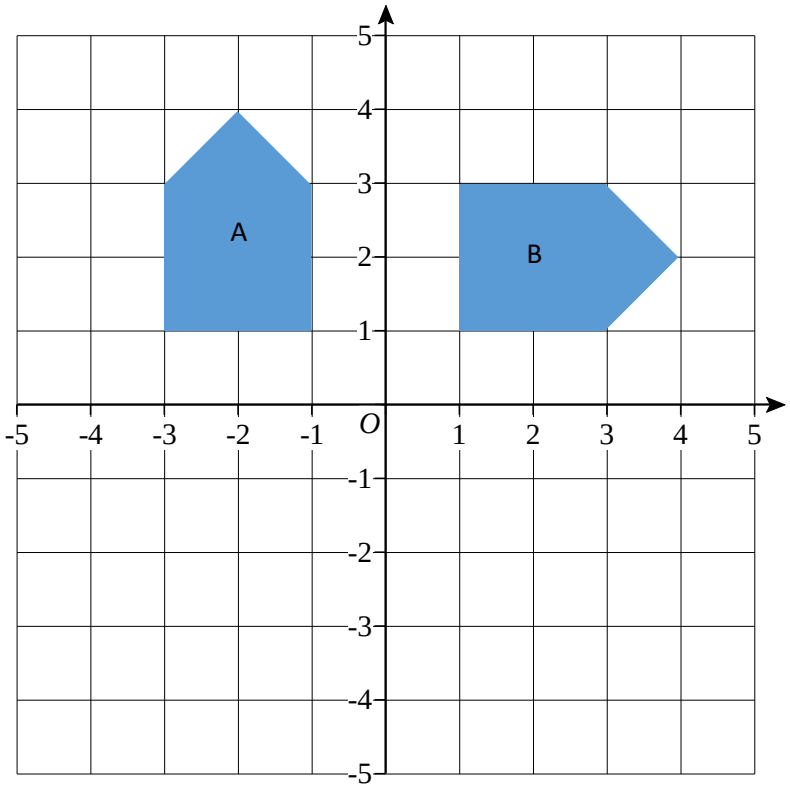
£1640 is invested in a bank for 3 years at 4% annual compound interest. Find the amount after 3 years.

TRANSFORMATIONS

a) Describe the single transformation to get from A to B?

b) Reflect A in the x axis and label it C.

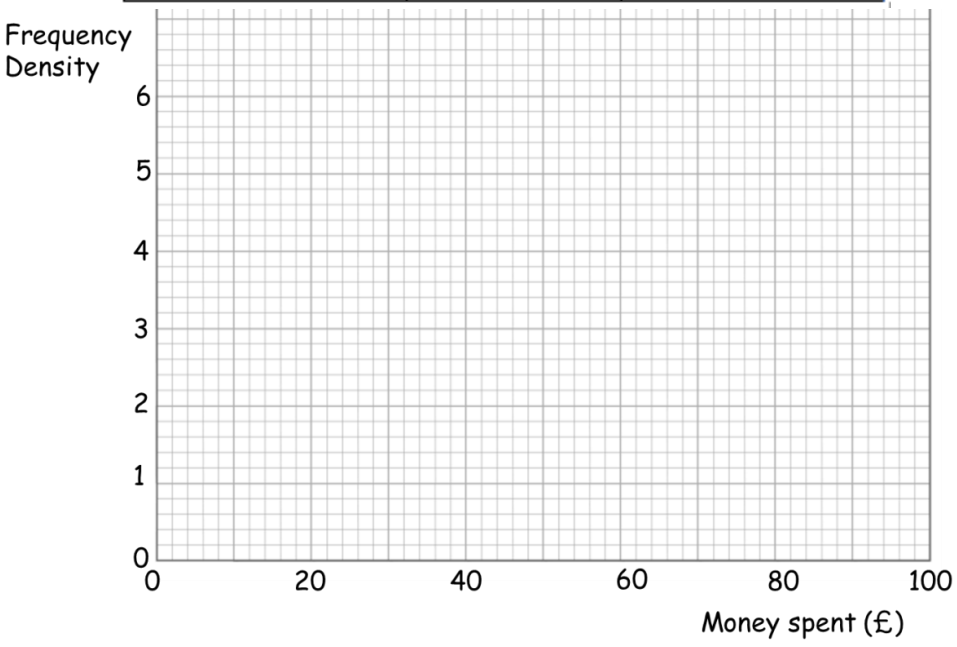
c) Translate A $\begin{pmatrix} 5 \\ -4 \end{pmatrix}$. Label it D.



GRAPHS AND CHARTS (HISTOGRAM,CUMULATIVE FREQUENCY ETC)

Draw a histogram to represent the following information.

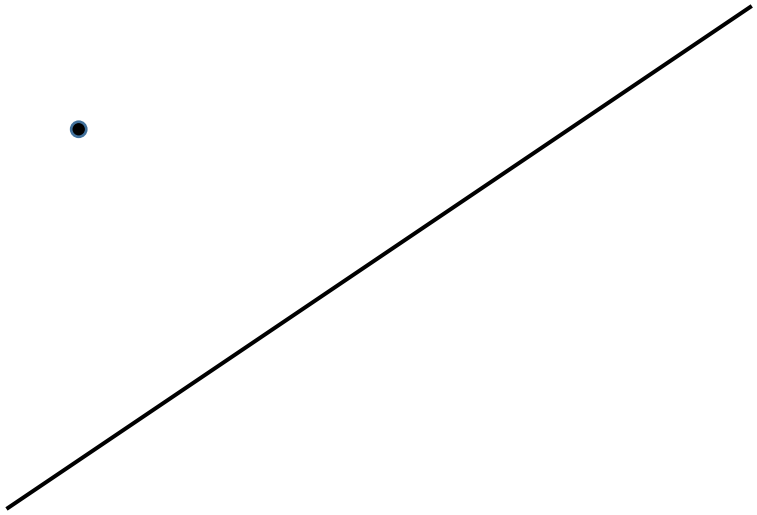
Money Spent (£)	Frequency	Frequency Density
0 ≤ £ < 20	40	
20 ≤ £ < 30	50	
30 ≤ £ < 40	55	
40 ≤ £ < 50	40	
50 ≤ £ < 100	50	



LOCI/CONSTRUCTIONS

a) Construct the perpendicular of the point to the line.

b) Hence, what is the shortest distance from the point to the line.



ALGEBRAIC GRAPHS – INCLUDING REGIONS, SOLVING AND TRANSFORMING

On the grid, shade the region that satisfies all three of these inequalities.

$y > -4$
$x < 2$
$y < 2x + 1$