



Maths Points

Junior and Leaving Cert

JCOL BASIC SKILLS PACK 4

JUNIOR CERT ORDINARY LEVEL





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Draw the graph of the following function in the domain $-2 \leq x \leq 2$, for $x \in \mathbb{R}$.

$$y = 2x + 3$$

Must find at least 2 points as the function is a straight line.
We can find these points by subbing in $x = -2$ and $x = 2$.

$$y = 2x + 3$$

$$y = 2x + 3$$

$$y = 2(-2) + 3$$

$$\leftarrow x = -2$$

$$y = -4 + 3$$

$$y = -1$$

$$(-2, -1)$$

$$y = 2x + 3$$

$$y = 2x + 3$$

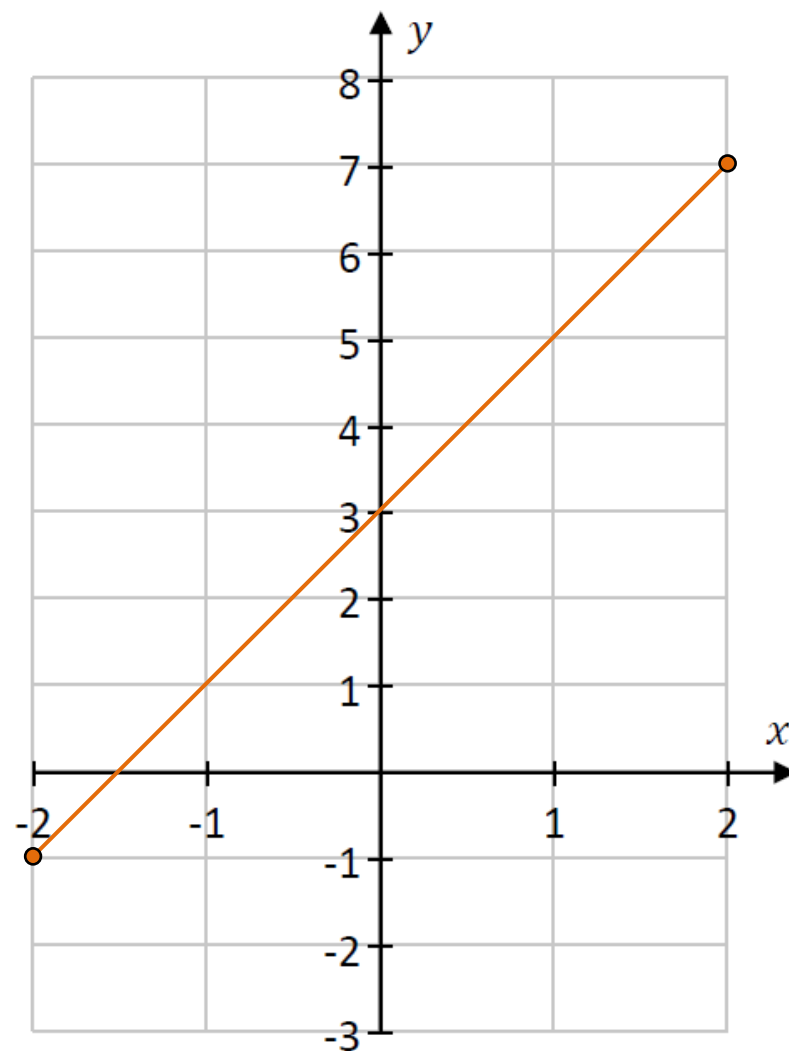
$$y = 2(2) + 3$$

$$\leftarrow x = 2$$

$$y = 4 + 3$$

$$y = 7$$

$$(2, 7)$$



R is the point $(-1, 2)$ and S is the point $(5, 6)$.
Find the midpoint of $[RS]$

The formula for the **Midpoint** is on
page 18 of the Maths Formulae Book.

Midpoint

$$= \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$R (-1, 2) \rightarrow (x_1, y_1)$$

$$S (5, 6) \rightarrow (x_2, y_2)$$

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$= \left(\frac{-1 + 5}{2}, \frac{2 + 6}{2} \right)$$

$$= \left(\frac{4}{2}, \frac{8}{2} \right)$$

$$= (2, 4)$$

$(2, 4)$ is the midpoint of $[RS]$.

Express $\frac{2x+1}{3} + \frac{3x-5}{2}$ as a single fraction. Give your answer in its simplest form.

Note:

Numerator – top of fraction

Denominator – bottom of fraction

$$\frac{2x + 1}{3} + \frac{3x - 5}{2}$$

$$= \frac{2(2x + 1) + 3(3x - 5)}{6}$$

$$= \frac{4x + 2 + 9x - 15}{6}$$

$$= \frac{13x - 13}{6}$$

Find the Lowest Common Multiple (LCM) of the denominators, in this case the LCM of 2 and 3 is 6. Divide each denominator into this LCM and multiply the result by the numerator.

Remove brackets by multiplication.

Simplify the numerator by adding or subtracting like terms.

There are 15 boxers in a boxing club. The weight of each boxer (in kg) is shown in the table below.

47	49	49	50	56
57	58	65	67	68
69	69	69	75	79

Complete the stem and leaf diagram below to show this data.

Stem

Leaf

4	7	9	9					
5	0	6	7	8				
6	5	7	8	9	9	9		
7	5	9						

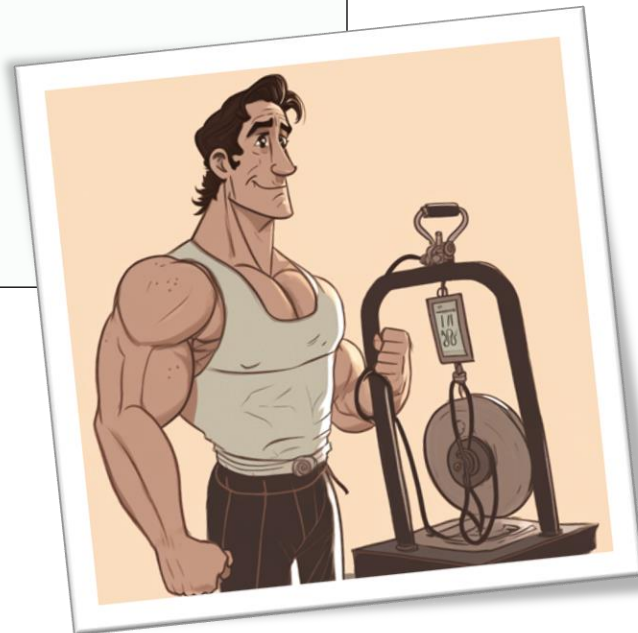
Key:

5

6

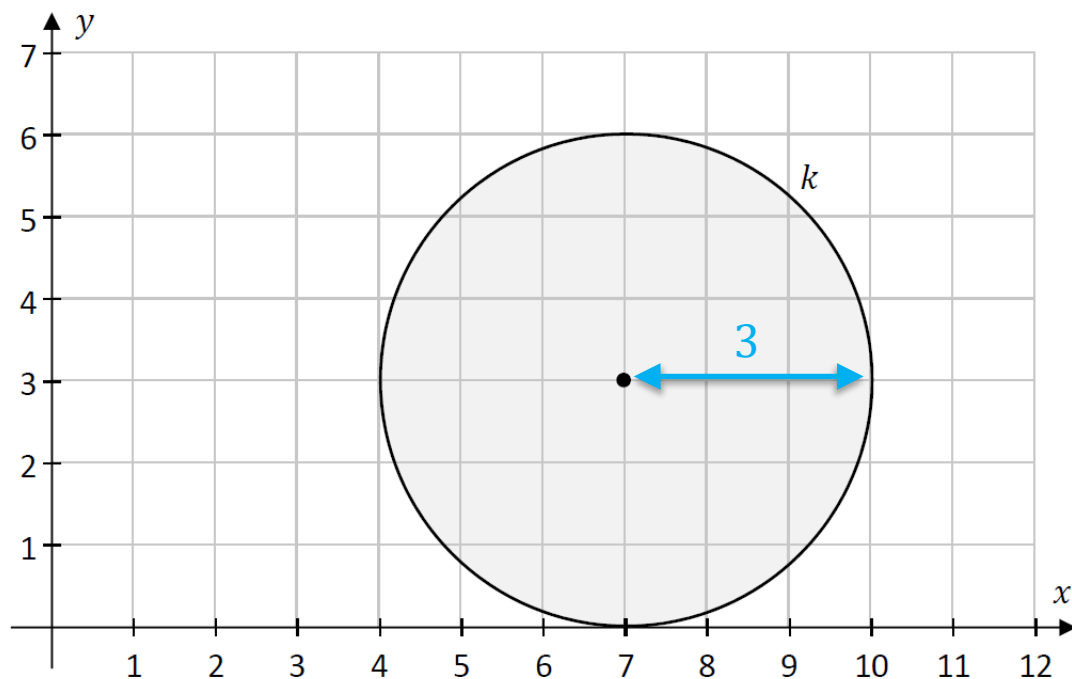
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56 [kg]



Work out the area of the circle k .
Give your answer in cm^2 , correct to one decimal place.

The formula for the Area of a Circle is on page 8 of the Maths Formulae Book.



Area of a Circle

$$A = \pi r^2$$

$$A = \pi r^2$$

$$A = \pi(3)^2$$

$$A = 9\pi$$

$$A = 28.3 \text{ cm}^2$$

$$r = 3$$

Correct to 1 decimal place.



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