

28-June-2026



$$x = y - 3$$
$$x + 3y = 5$$



$$\text{Solve } \cancel{11} + 5d \geq 26$$

$\quad \quad \quad -11 \quad \quad$

$$\frac{\cancel{5}d}{\cancel{5}} \geq \frac{15}{5}$$

$$d \geq 3$$



$$\text{Solve } \frac{a}{3} + \cancel{2} \geq 5$$

$\quad \quad \quad -2 \quad \quad$

$$\cancel{3} \times \frac{a}{\cancel{3}} \geq 3 \times 3$$

$$a \geq 9$$



$$\text{Solve } 1 \leq 2t - \cancel{5} \leq 11$$

$\quad +5 \quad \quad \quad +\cancel{5} \quad \quad +5$

$$\frac{6}{2} \leq \frac{\cancel{2}t}{\cancel{2}} \leq \frac{16}{2}$$

$$3 \leq t \leq 8$$

$$t \geq 3 \quad \text{and} \quad t \leq 8$$



$$*) \quad \frac{8-5w}{4} \geq 1$$

$$\cancel{8} - 5w \geq 4$$

$$\cancel{-8} \quad \quad \quad -8$$

$$-5w \geq -4$$

$$\times (-1)$$

$$\frac{\cancel{5}w}{\cancel{5}} \leq \frac{4}{5}$$

$$w \leq \frac{4}{5}$$

*) Solve the quadratic inequality

$$(5-x)(2x+1) \leq 0.$$

$$10x + 5 - 2x^2 - x \leq 0$$

$$-2x^2 + 9x + 5 \leq 0$$

$$\times (-1)$$

$$2x^2 - 9x - 5 \geq 0$$

$$2x^2 - 9x - 5 = 0$$

$$2x^2 - 10x + x - 5 = 0$$

$$2x(x-5) + 1(x-5) = 0$$

$$(x-5)(2x+1) = 0$$

$$x-5 = 0$$

$$x = 5$$

$$2x+1 = 0$$

$$x = -\frac{1}{2}$$

$$\begin{array}{l} \text{a} \times \text{c} \\ -10 \times 1 = \boxed{-10} \end{array}$$

$$\begin{array}{l} -10 + 1 = \boxed{-9} \\ \text{b} \end{array}$$



In a Physics lesson, Chantelle adds weights to a spring and carefully measures the extension. She finds that the weight, y g is related to the extension, x cm by the formula

$$y = 0.5x + 1 \text{ for } 0 \leq x \leq 20.$$

a Draw the graph of y against x for $0 \leq x \leq 20$.

b Use this graph to find the

(i) weight for a 17 cm extension $\rightarrow 9.5 \text{ g}$

(ii) extension produced by a 5 g weight. $\rightarrow 8 \text{ cm}$

c What would Chantelle's formula predict for the spring's extension for a 1 kg weight? Comment on your answer.

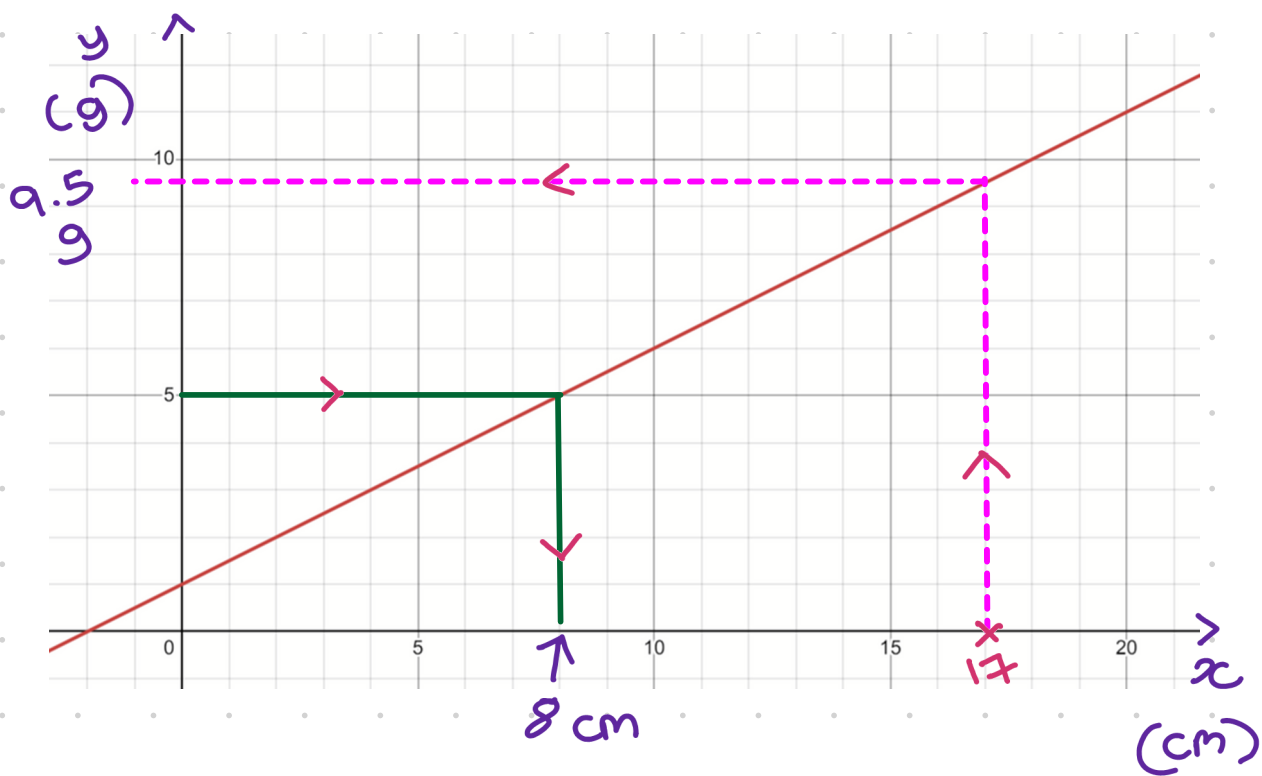
$$1000 \text{ g}$$

$$1000 = 0.5x + 1$$

$$\begin{array}{r} 999 = 0.5x \\ \hline 0.5 \end{array}$$

$$x = 1998 \text{ cm}$$







A combined car and lorry park is to be marked into parking spaces. There are C car spaces and L lorry spaces. The spaces for cars each require an area of 10m^2 and those for lorries need 30m^2 . The total available area is 2000m^2 .

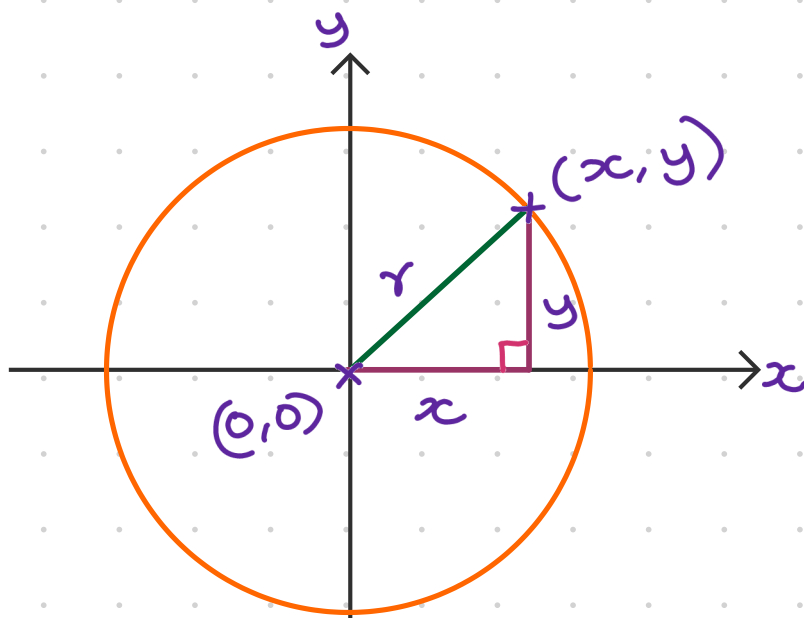
There must be at least 50 car spaces and 20 lorry spaces.

a) Write down the three inequalities that need to be satisfied.

b) Illustrate the region satisfying these inequalities, using the x -axis for C and the y -axis for L .



Circle



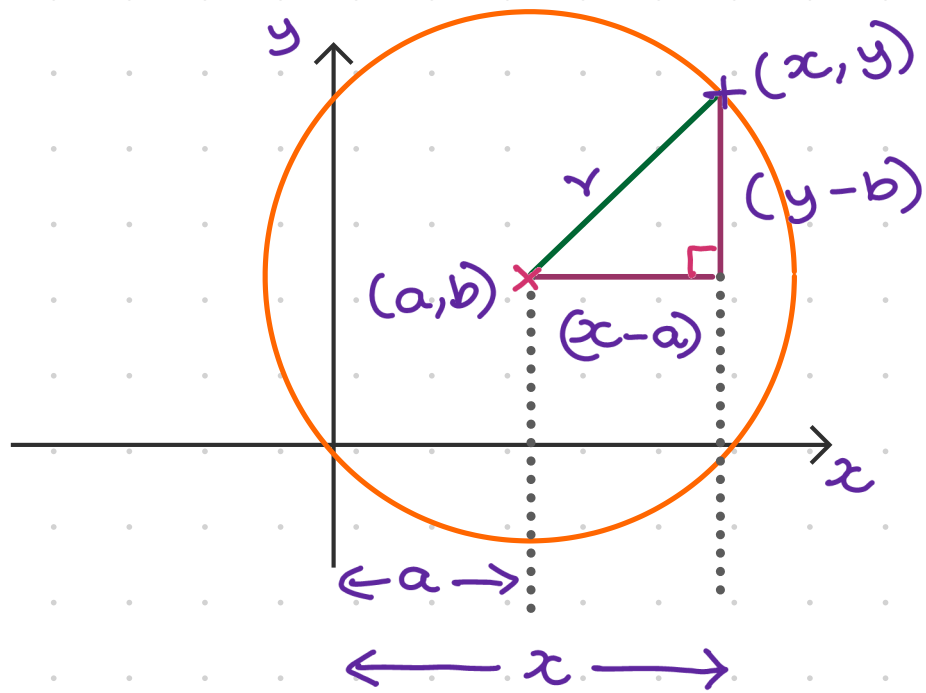
$$x^2 + y^2 = r^2$$

$$x^2 + y^2 = 49$$



$$r^2 = 49$$

$$r = 7, \text{ centre } (0,0)$$



$$(x-a)^2 + (y-b)^2 = r^2$$



Centre is $(-1, 3)$ and has a radius of 4.

(a, b)

(r)

$$(x-a)^2 + (y-b)^2 = r^2$$

$$(x+1)^2 + (y-3)^2 = 16$$



Does $(3, 9)$ lie on the circle with equation $(x - 4)^2 + (y - 3)^2 = 36$



A circle has centre $(7, 2)$.

The point $(1, -6)$ lies on the circle.

Find the equation of the circle.

$$(x - a)^2 + (y - b)^2 = r^2$$

$$(x - 7)^2 + (y - 2)^2 = r^2$$



$$(x + 5)^2 + (y - 7)^2 = 4$$

$$(x - a)^2 + (y - b)^2 = r^2$$

$$a = -5, \quad b = 7$$

$$\text{centre } (-5, 7), \quad r = 2$$