

Question 1**Question 11**

(Suggested maximum time: 10 minutes)

- (a) Work out the value of $12 - 3k^2$ when $k = -2$.

Question 2

Q2

Multiply out and simplify $4x(5x + 4) - 3(x - 2)$.

Factorise fully $9 - 25y^2$.

Question 3

Question 12

(Suggested maximum time: 20 minutes)

- (a) Factorise $n^2 - 11n + 18$.



- (b) Factorise fully $wy - y - 1 + w$.



- (c) Find the value of $\frac{5}{3x-2} - \frac{7}{6x-12}$, when $x = 4$.



Question 4

- (a)** Multiply out and simplify $(x + 5)(x^2 - 2x + 6)$.

Question 5

- (b)** Factorise each of the following expressions.

$$\text{(i)} \quad 25x^2 - 49n^2$$

(ii) $2x^2 - 9x - 18$

Question 6

- 4. (a)**  Graph on the number line the solution set of

$$4 - x \geq 2x - 5, \quad x \in \mathbb{N}.$$

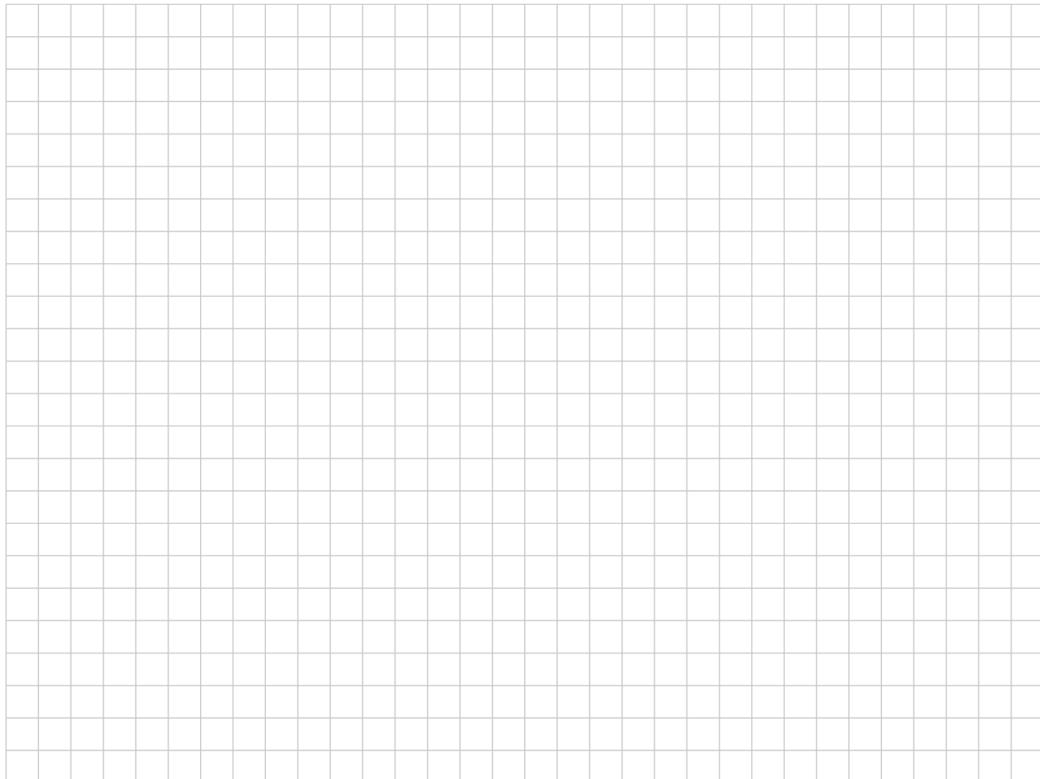
Question 7

Question 8

(Suggested maximum time: 10 minutes)

- (a) Solve the following equation. Give each answer correct to two decimal places.

$$x^2 - 4x - 7 = 0$$

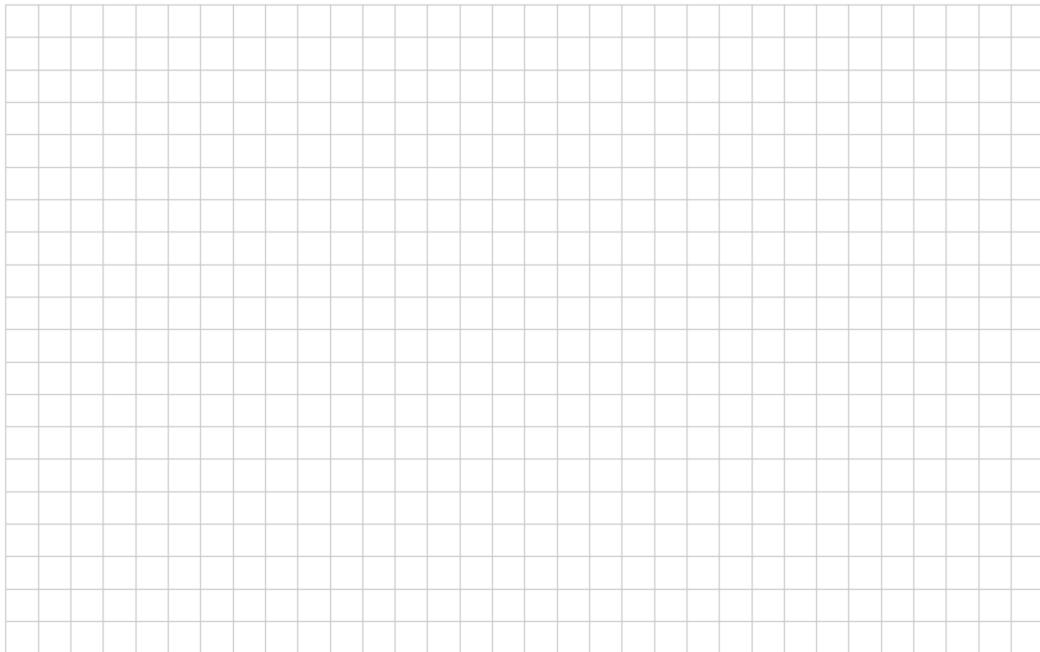
A large grid of squares, approximately 20 columns by 20 rows, intended for students to show their working for Question 8(a).

Question 8

(c) (i) Solve the simultaneous equations:

$$2x - 3y = 18$$

$$5x + 9y = -10.$$

A large rectangular grid of small squares, intended for students to show their working for part (i) of the question.

(ii) Verify your answer to (c)(i).

A second large rectangular grid of small squares, intended for students to show their working for part (ii) of the question.

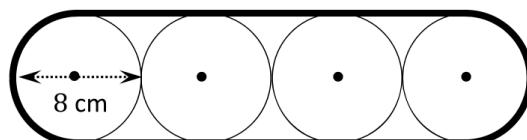
Question 9

Question 10

(Suggested maximum time: 10 minutes)

- (a) Work out the circumference of a circle with a **diameter** of 8 cm.
Give your answer correct to one decimal place.

The rubber track for a toy digger goes around four circular wheels of diameter 8 cm, as shown.



- (b)** Calculate the length of the rubber track that goes around the four wheels.
Give your answer correct to one decimal place.

Every time the wheels turn fully, the digger travels a distance equal to one wheel's circumference.

- (c) Work out how many times each wheel will turn **fully** when the digger travels a distance equal to the length of its rubber track.