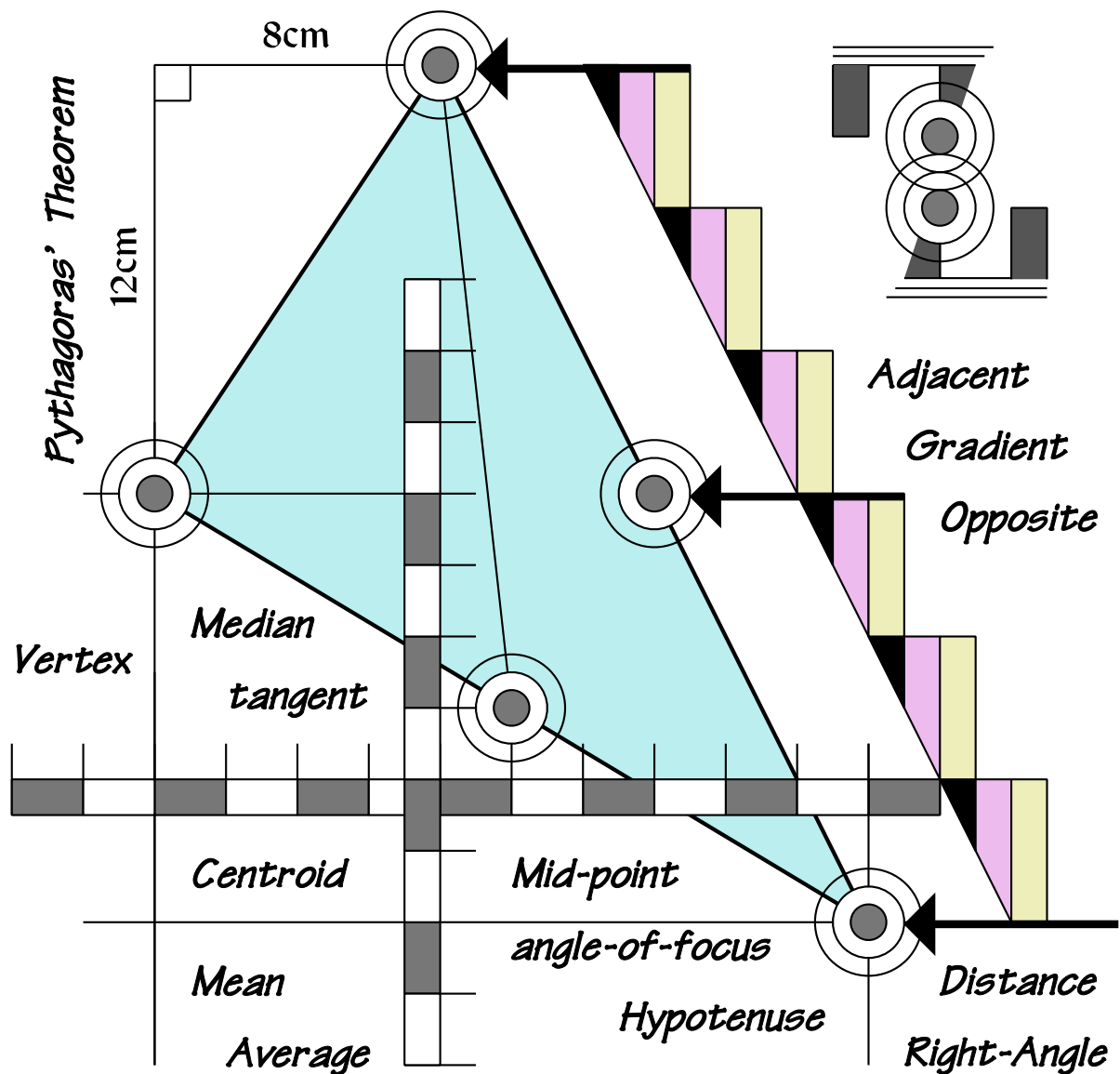


Coordinate Geometry

Featuring an Introduction to TRIGONOMETRY



Lesson 1

Coordinate Geometry : Year 9

1.1 Between two points

Example

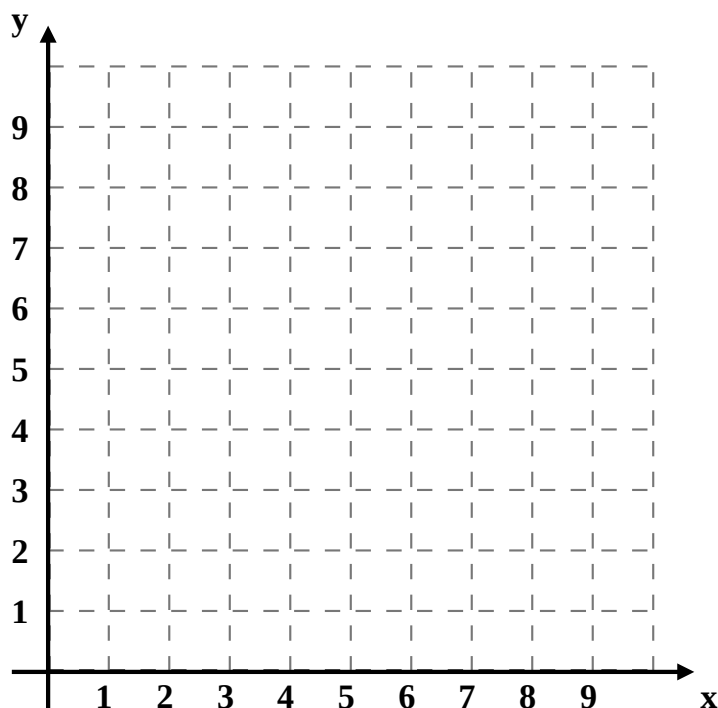
On the grid below each square represents 1 km by 1 km.

Buried treasure is at (3, 2).

(i) Mark the location of the buried treasure with an X .

A man is at (8, 9).

(ii) Mark the location of the man with an M .



(iii) Find the distance between the treasure, X , and the man, M .
Give your answer correct to two decimal places.

1.2 Exercise

Question 1

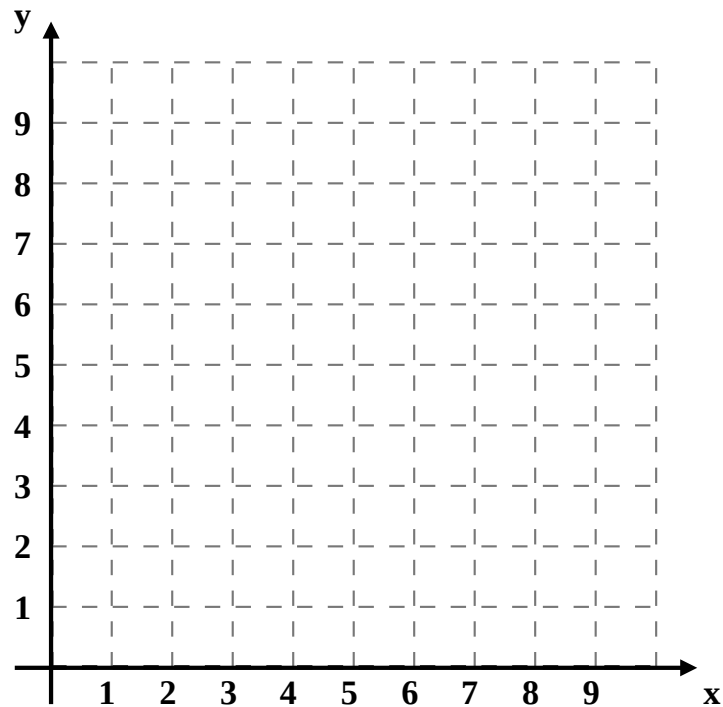
On the grid below each square represents 1 metre by 1 metre.

A cow pat is at $(2, 3)$.

(i) Mark the location of the cow pat with a P .

A fly is at $(9, 6)$.

(ii) Mark the location of the fly with an F .



(iii) Find the distance between the cow pat, P , and the fly, F .
Give your answer correct to two decimal places.

Question 2

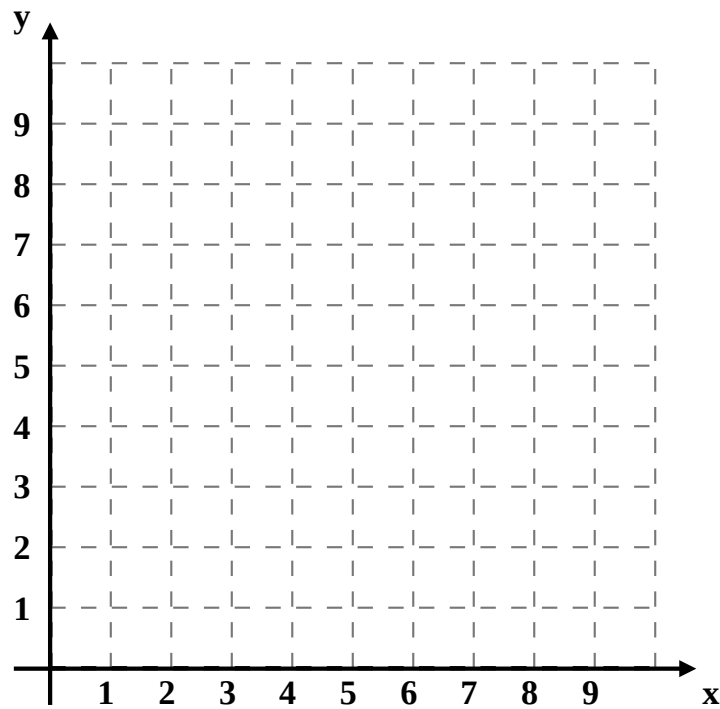
On the grid below each square represents 1 km by 1 km.

A water hole is at (2, 9).

(i) Mark the location of the water hole with a *W*.

A snake is at (7, 3).

(ii) Mark the location of the snake with an *S*.



(iii) Find the distance between the water hole, *W*, and the snake, *S*.
Give your answer correct to two decimal places.

Question 3

On the grid below each square represents 1 metre by 1 metre.

A bee is at (1, 5).

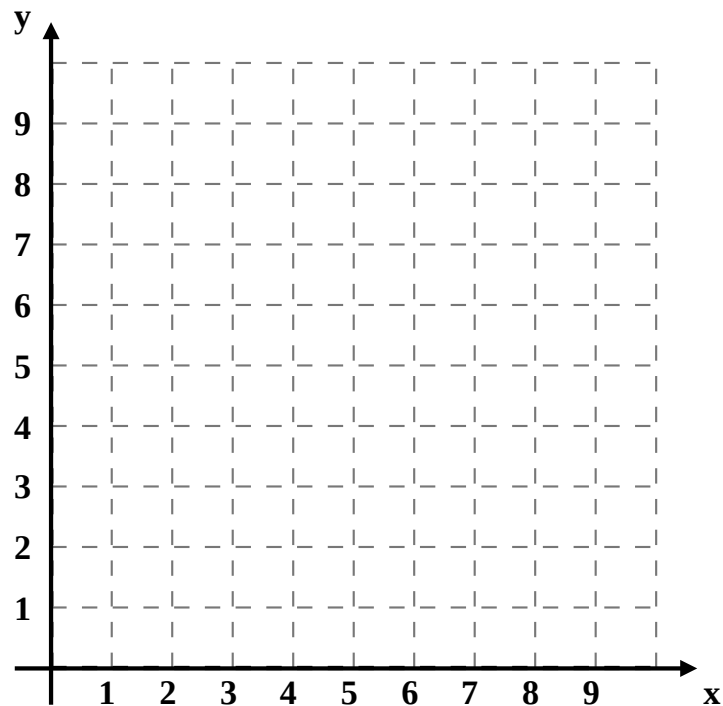
(i) Mark the location of the bee with a *B*.

A daisy is at (7, 8).

(ii) Mark the location of the daisy with a *D*.

A pansy is at (8, 3).

(iii) Mark the location of the pansy with a *P*.



(iii) Find, to two decimal places, the distance between the bee, *B*, and the daisy, *D*.

(iv) Find, to two decimal places, the distance between the bee, *B*, and the pansy, *P*.

Question 4

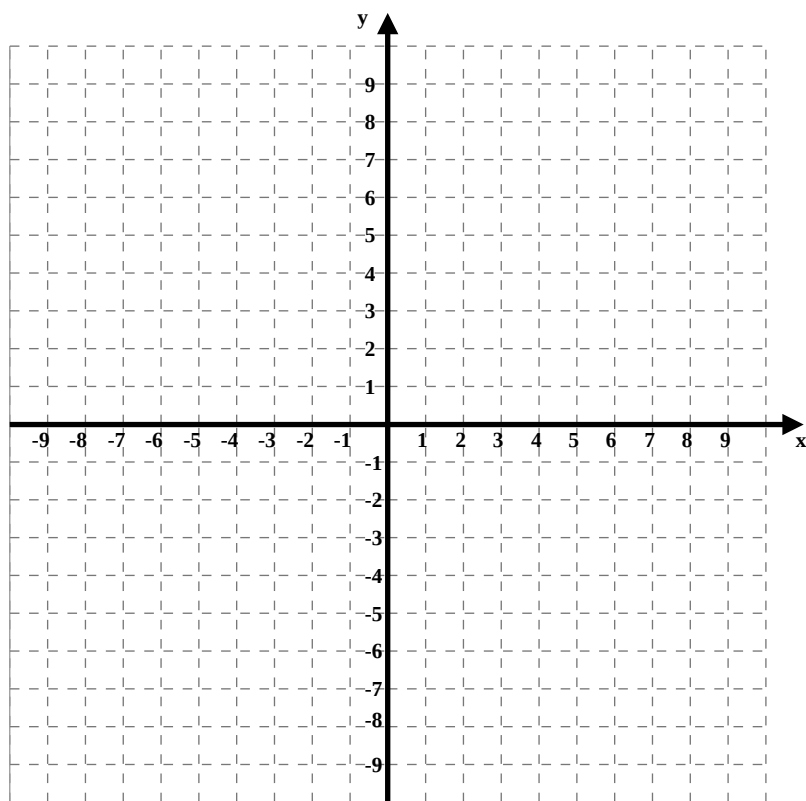
On the grid below each square represents 1 mm by 1 mm.

An ant is at the point $(-6, -2)$.

(i) Mark the location of the ant with an A.

A spider is at $(5, 7)$.

(ii) Mark the location of the spider with an S.



(iii) Find the distance between the ant, A, and the spider, S.
Give your answer correct to two decimal places.

Question 5

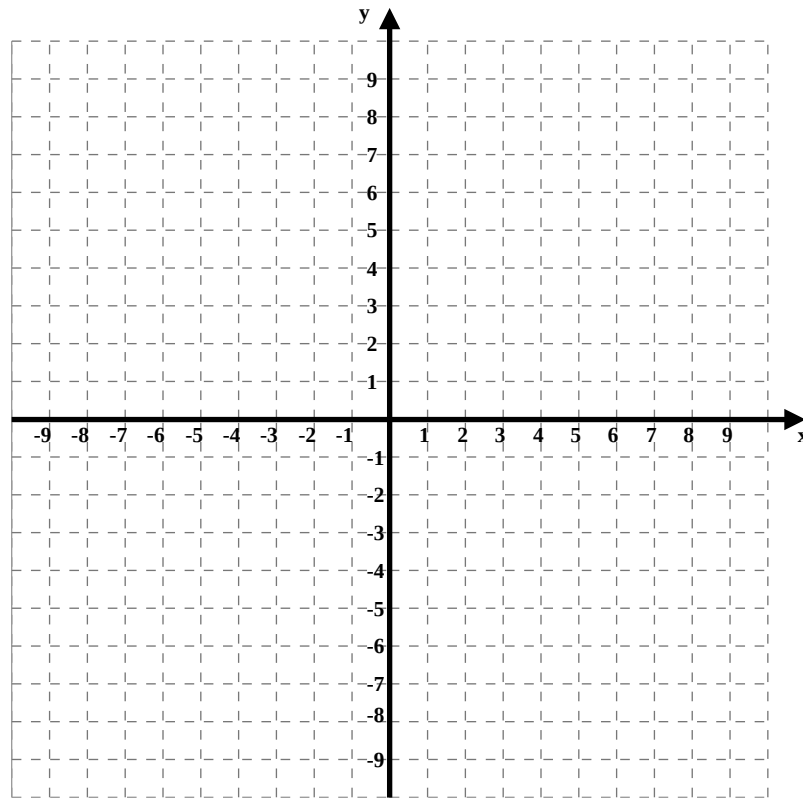
On the grid below each square represents 1 km by 1 km.

An lighthouse is at the point $(-7, 8)$.

(i) Mark the location of the lighthouse with an L .

A yacht is at $(5, -9)$.

(ii) Mark the location of the yacht with a Y .



(iii) Find the distance between the lighthouse, L , and the yacht, Y .
Give your answer correct to two decimal places.

Question 6

Suppose we have two points.

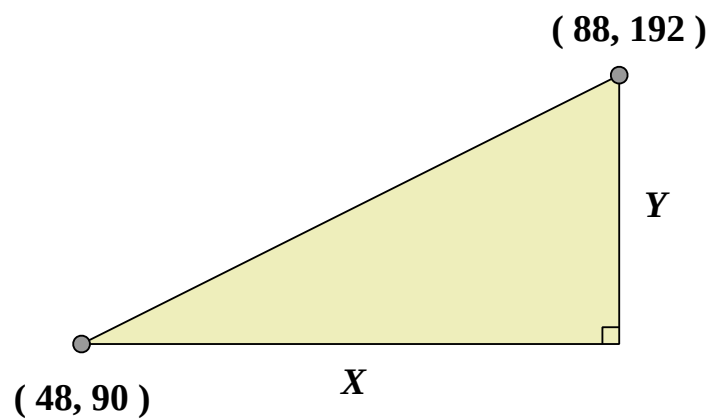
Let's call one point A and the other point B .

The coordinates of A are $(48, 90)$.

The coordinates of B are $(88, 192)$.

The units of the coordinates are cm.

Rather than plot the points, sketch a (not to scale) right-angled triangle;



- (i) What is the length marked X ?

- (ii) What is the length marked Y ?

- (iii) Use the theorem of Pythagoras to work out the distance between the points $(48, 90)$ and $(88, 192)$.

Question 7

Use the 'sketch a (not to scale) right-angled triangle' technique to find the distance between $(12, 37)$ and $(52, 100)$.

HINT : Draw a not-to-scale right-angled triangle in the space below.

Then mark of the lengths of the two sides that touch the right angle.

Then use the Theorem of Pythagoras.

Question 8

Find the distance between the points $(-4, -7)$ and $(34, 66)$.

Question 9

Point A is (X_A, Y_A) .

Point B is (X_B, Y_B) .

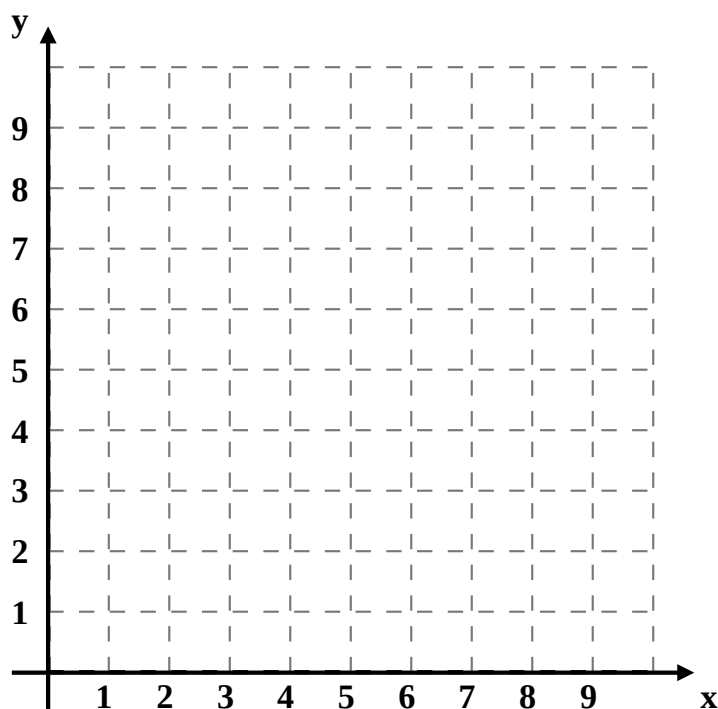
(i) Work out a formula for the distance between the points A and B .

(ii) Show me that your formula works by putting the points $(3, 2)$ and $(8, 9)$ into it, which are the coordinates from the introductory example.
(So you know what the answer should be)

Question 10

On the grid below;

- (i) Shade the square with vertices $(0, 7)$, $(3, 10)$, $(6, 7)$ and $(3, 4)$.
- (ii) Shade the square with vertices $(6, 4)$, $(6, 7)$, $(9, 7)$ and $(9, 4)$.
- (iii) Shade the square with vertices $(6, 1)$, $(3, 1)$, $(3, 4)$ and $(6, 4)$.



- (iv) What does the theorem of Pythagoras tell you about the areas of the squares you shaded in parts (i), (ii) and (iii) ?