

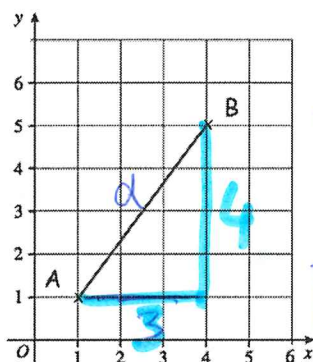
Lesson 11: Mixed Questions

Section 1

A. Draw a right triangle on the grid, where AB is the hypotenuse. Use the Pythagorean Theorem.

Question 1: Calculate the length of the line joining the points A and B.

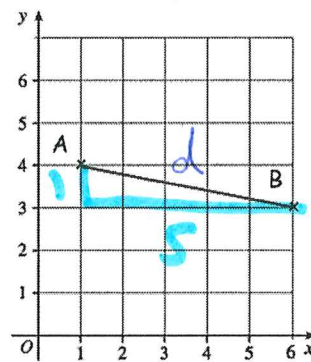
(a)



$$\begin{aligned} d^2 &= 3^2 + 4^2 \\ &= 9 + 16 \\ &= 25 \end{aligned}$$

$$d = 5$$

(c)



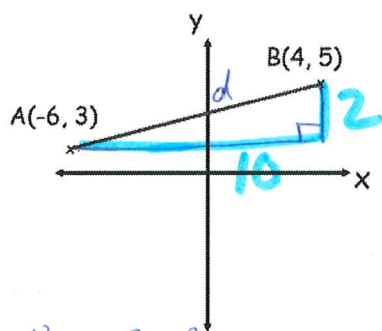
$$\begin{aligned} d^2 &= 1^2 + 5^2 \\ &= 1 + 25 \\ &= 26 \end{aligned}$$

$$d = \sqrt{26}$$

$$d = 5.1$$

Question 4: Calculate the length of the line joining the points A and B

(a)

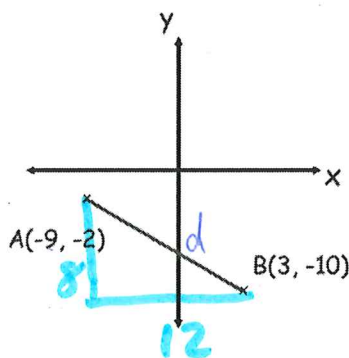


$$\begin{aligned} d^2 &= 10^2 + 2^2 \\ &= 104 \end{aligned}$$

$$d = \sqrt{104}$$

$$d = 10.2$$

(b)

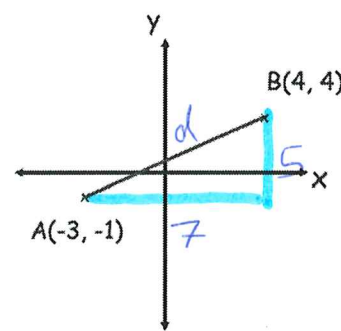


$$\begin{aligned} d^2 &= 8^2 + 12^2 \\ &= 64 + 144 \\ &= 208 \end{aligned}$$

$$d = \sqrt{208}$$

$$d = 14.4$$

(c)



$$\begin{aligned} d^2 &= 7^2 + 5^2 \\ &= 49 + 25 \\ &= 74 \end{aligned}$$

$$d = \sqrt{74}$$

$$d = 8.6$$

ext

Question 5: Calculate the distance between the following pairs of coordinates

(a) (5, 1) and (9, 6) $d = \sqrt{4^2 + 5^2} = \sqrt{16 + 25} = \sqrt{41} = 6.4$

(d) (2.5, 3) and (8, 0) $d = \sqrt{5.5^2 + 3^2} = \sqrt{30.25 + 9} = \sqrt{39.25} = 6.3$

(g) (-5, 7) and (-3, -2) $d = \sqrt{2^2 + 9^2} = \sqrt{4 + 81} = \sqrt{85} = 9.2$

B Problems with distance

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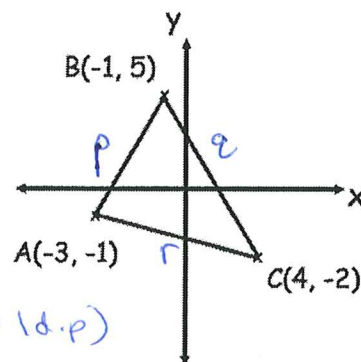
Question 1: Calculate the perimeter of triangle ABC.

$$p = \sqrt{2^2 + 6^2} = \sqrt{40}$$

$$q = \sqrt{5^2 + 7^2} = \sqrt{74}$$

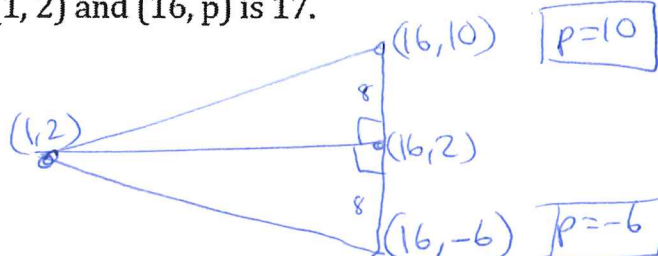
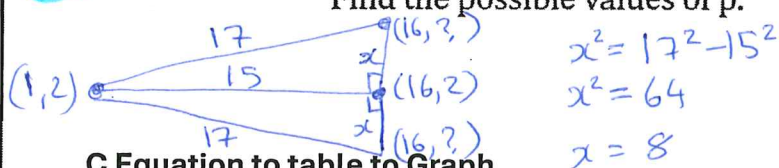
$$r = \sqrt{7^2 + 1^2} = \sqrt{50}$$

$$\text{Perimeter} = \sqrt{40} + \sqrt{74} + \sqrt{50} = 22 \quad (\text{rounded to 1 d.p.})$$



ext

Question 2: The distance between the points (1, 2) and (16, p) is 17. Find the possible values of p.



C Equation to table to Graph

For each equation, complete the table of values. Plot the points. Draw the line using a ruler.

(a) $y = 2x + 1$

x	-1	0	1	2	3
y	-1	1	3	5	7

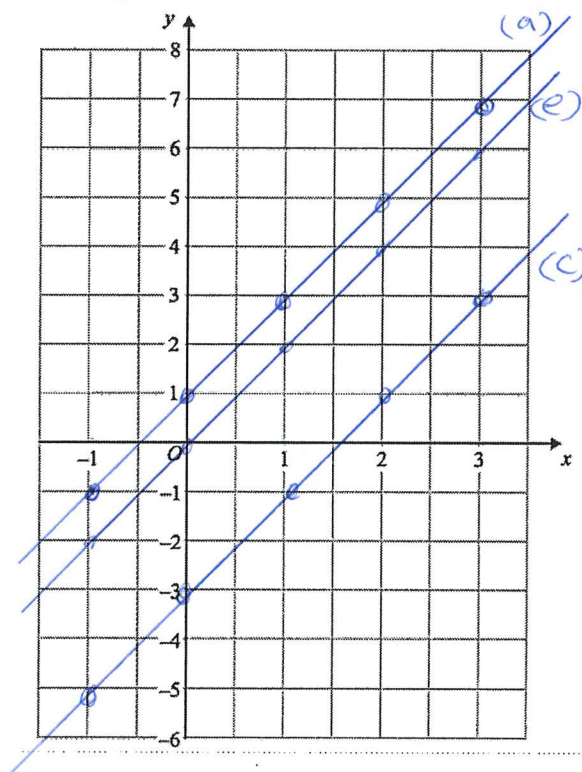
(c) $y = 2x - 3$

x	-1	0	1	2	3
y	-5	-3	-1	1	3

(e) $y = 2x$

x	-1	0	1	2	3
y	-2	0	2	4	6

Careful with the x-scale



(b) $y = x + 9$

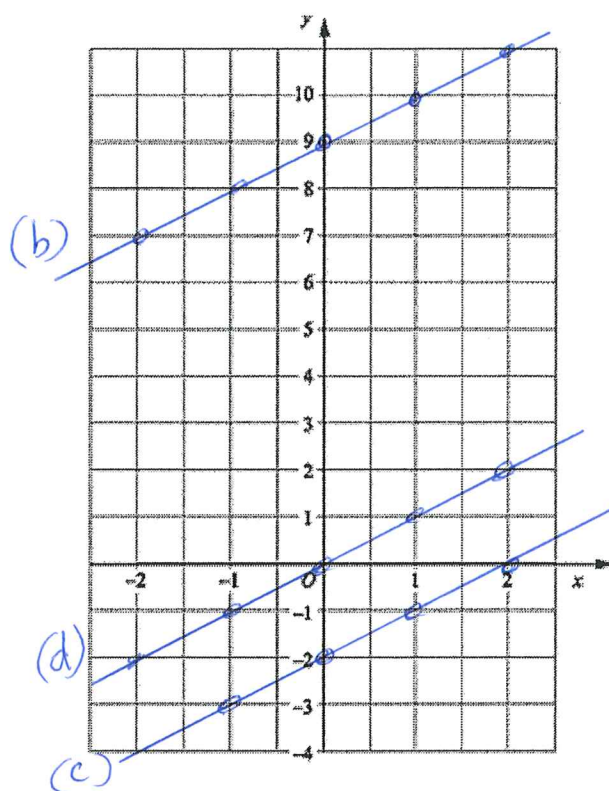
x	-2	-1	0	1	2
y	7	8	9	10	11

(c) $y = x - 2$

x	-2	-1	0	1	2
y	-4	-3	-2	-1	0

(d) $y = x$

x	-2	-1	0	1	2
y	-2	-1	0	1	2

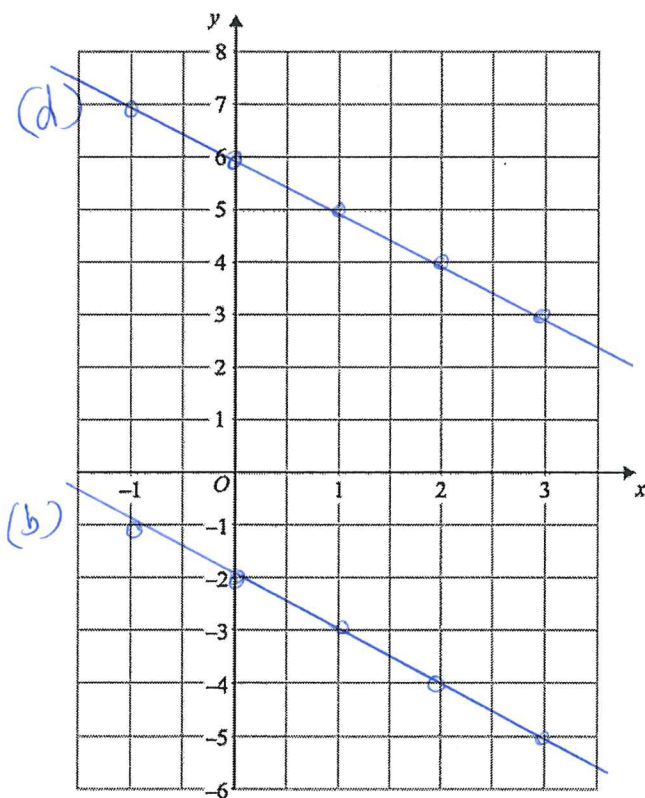


(b) $y = -x - 2$

x	-1	0	1	2	3
y	-1	-2	-3	-4	-5

(d) $y = 6 - x$

x	-1	0	1	2	3
y	7	6	5	4	3

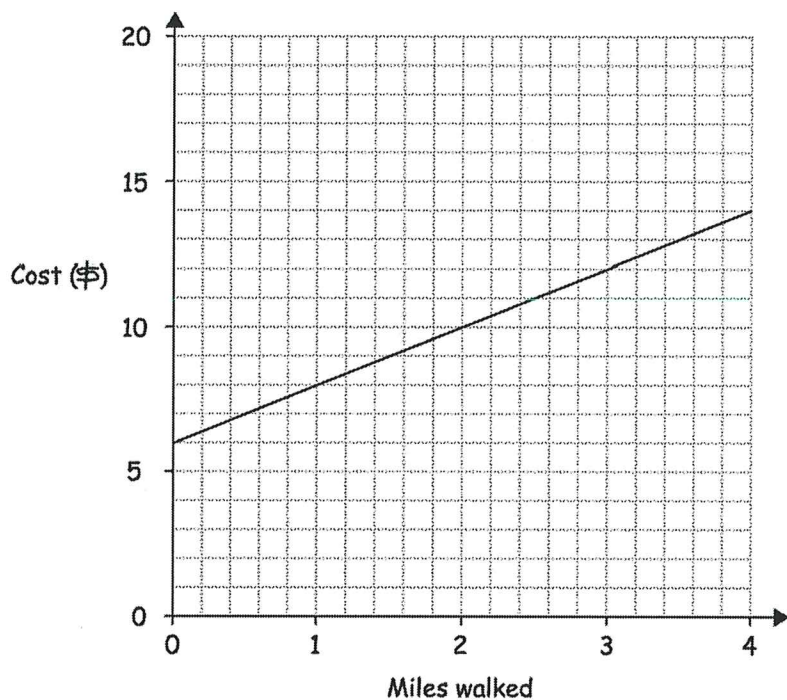


D Application

Una is a dog walker.

The graph shows how much she charges for each walk.

For each walk, there is a set fee and a charge per mile.



Miles (d)	Cost (C)
0	\$6
1	\$8
2	\$10
3	\$12
4	\$14

(a) Use the graph to complete the table of values.

(b) How much is Una's set fee? $\$6$

(c) How much does she charge per mile? $\$2$

(d) Make a formula to relate the distance she walks with the cost of walking.

$$C = 6 + 2 \times \text{miles} \quad \text{or} \quad C = 6 + 2m$$

(e) How much does she charge for a 6 mile walk?

$$C = 6 + 2(6) = \$18$$

(f) What would you consider a fair price for a 3.4 mile walk? Explain.

charge for $m=3.4$

$$C = 6 + 2(3.4) = \$12.80$$

(g) How much does she charge for a 6 km walk? ($1 \text{ km} \approx \frac{5}{8} \text{ mile}$). Show your working.

$$1 \text{ km} = \frac{5}{8} \text{ miles}$$

$$6 \text{ km} = 6 \times \frac{5}{8} \text{ miles} = 30 \div 8 = 3.75 \text{ miles.}$$

$$C = 6 + 2(3.75) = \$13.50$$