

Revision Test 1

Duration: 40 minutes

20

1. A length of 13 cm on a map represents 3.9 km on the ground. Find
- (a) the linear scale, in the form $1 : n$, of the map,
 - (b) the actual distance, in km, of two towns which are 5.2 cm apart on the map,
 - (c) the area of a pond, in cm^2 , on the map if its actual area is 27 km^2 .

Answer (a) _____ : _____ [1]

(b) _____ km [1]

(c) _____ cm^2 [2]

2. (a) Make x the subject of the formula $y = \sqrt{4n - x}$.
- (b) Express the expression $\frac{2}{p+q} - \frac{1}{p-q}$ as a single fraction in its simplest form.

Answer (a) _____ [2]

(b) _____ [3]

3. The diagram in the answer space shows the graph of a straight line $y = ax + 4$.
- (a) Use the graph to find the value of
- (i) a ,
- (ii) b such that (b, b) is a point lies on the straight line $y = ax + 4$.
- (b) Complete the table in the answer space.
- (c) Using the aid of the table, draw the straight line $y = 2x + 1$ on the graph in the answer space.
- (d) Hence, solve the simultaneous equations $y = ax + 4$ and $y = 2x + 1$ using graphical method.

Answer (a)(i) $a =$ _____ [1]

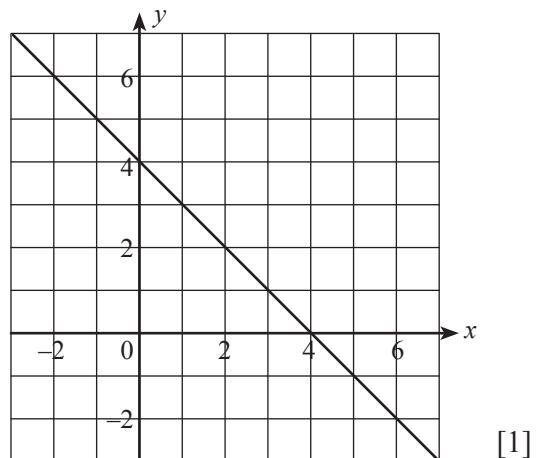
(ii) $b =$ _____ [1]

(b)

x	-1	1	
$y = 2x + 1$	-1		7

 [1]

(c)



(d) $x =$ _____, $y =$ _____ [1]

4. The cost of ticket to a zoo is $\$x$ for an adult and $\$y$ for a child. On a Sunday, there were 800 visitors to the zoo, of which 280 were adults. On the next day, the number of visitors decreased by 20%. There is an equal number of adults on both days.

(a) Calculate the number of children visited the zoo on that Monday.

Given that the zoo collected \$11 840 and \$9920 from selling the tickets on that Sunday and Monday respectively.

(b) Write down two equations, in terms of x and y , in their simplest form.

(c) Solve for the values of x and y .

Answer (a) _____ [2]

(b) _____

_____ [2]

(c) $x =$ _____

$y =$ _____ [2]

–End–

Solutions to Revision Test 1

1. (a) Length on the map : distance on the ground
 = 13 cm : 3.9 km
 = 1 cm : 0.3 km
 = 1 cm : 30 000 cm
 = 1 : 30 000 [1]

(b) $\frac{\text{Actual distance}}{\text{Length on the map}} = \frac{3.9 \text{ km}}{13 \text{ cm}}$
 Actual distance = $\frac{3.9 \text{ km}}{13 \text{ cm}} \times 5.2 \text{ cm}$
 = 1.56 km [1]

(c) $\frac{\text{Area on the map}}{\text{Actual area}} = \left(\frac{13 \text{ cm}}{3.9 \text{ km}}\right)^2$
 Area on the map = $\left(\frac{13 \text{ cm}}{3.9 \text{ km}}\right)^2 \times 27 \text{ km}^2$ [1]
 = $\frac{169}{15.21} \times 27$
 = 300 cm² [1]

2. (a) $y = \sqrt{4n - x}$
 $y^2 = 4n - x$ [1]
 $x = 4n - y^2$ [1]

(b) $\frac{2}{p+q} - \frac{1}{p-q} = \frac{2(p-q) - (p+q)}{(p+q)(p-q)}$ [1]
 = $\frac{2p - 2q - p - q}{(p+q)(p-q)}$ [1]
 = $\frac{p - 3q}{(p+q)(p-q)}$ [1]

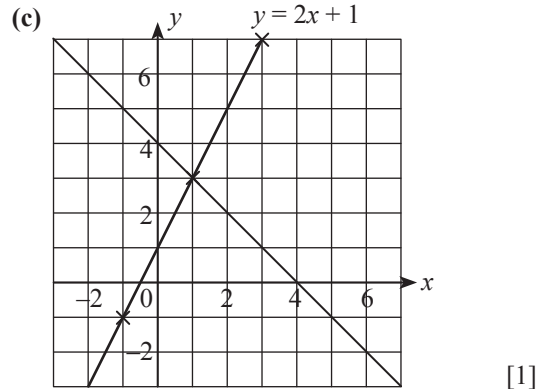
3. (a) (i) $a = \text{gradient}$
 = $-\frac{4}{4}$
 = -1 [1]

(ii) When $x = 2, y = 2$.
 $\therefore b = 2$ [1]

(b)

x	-1	1	3
$y = 2x + 1$	-1	3	7

[1]



(d) Intersection point = (1, 3)
 $\therefore x = 1, y = 3$ [1]

4. (a) Number of visitors on Monday = $\frac{80}{100} \times 800$
 = 640 [1]
 Number of children on Monday = 640 - 280
 = 360 [1]

(b) On Sunday, $280x + 520y = 11\ 840$
 $7x + 13y = 296$... (1) [1]
 On Monday, $280x + 360y = 9920$
 $7x + 9y = 248$... (2) [1]

(c) (1) - (2):
 $(7x + 13y) - (7x + 9y) = 296 - 248$
 $4y = 48$
 $y = 12$ [1]

Substitute $y = 12$ into (1).
 $7x + 13(12) = 296$
 $7x = 140$
 $x = 20$ [1]