Name:	Register Number:	Class:

BEDOK GREEN SECONDARY SCHOOL

2N **2N**

Mid-Year Examination 2018

MATHEMATICS

Paper 1 9 May 2018

1 h 15 min

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number on the question paper.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
Write your working and answers in the spaces provided on the question paper.
If working is needed for any question, it must be shown with the answer.
Omission of essential working will result in loss of marks.

You are expected to use a scientific calculator to evaluate explicit numerical expressions.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

The number of marks is given in brackets [ ] at the end of each question or part question.
The total marks for this paper is 50.

For Examiner's Use
50

This document consists of **10** printed pages including the cover page.

[Turn Over

Answer **all** questions.

1. Express the ratio 36 seconds : 3 minutes : 0.5 hour in its simplest form.

Answer ..... : ..... : ..... [2]

2. Write the following numbers in order of size, starting with the **smallest**.

$$-\frac{9}{10},\ \sqrt{9},\ 0.909,\ 0.\dot{9},\ 0.09$$

Answer ....., ..., ..., ..., ... [2]

3. Round off

(a) 13788 to 1 significant figure,

(b) 0.03846 to 2 significant figures.

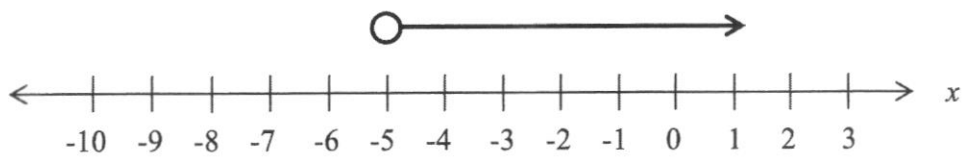
Answer (a) ..... [1]

(b) ..... [1]

4. Evaluate $\frac{2}{3}[-2-4(-3-5)]$ without using a calculator, showing your working clearly.

Answer ..... [2]

5. A number line is given below.



(a) Write down the inequality represented by the number line above.

(b) Write down the smallest prime number that satisfies the inequality.

Answer (a) ..... [1]

(b) ..... [1]

6. Given that x and y are in direct proportion, find the values of a and b.

x	10	20	b
y	3	a	15

Answer $a =$ ..... [1]

$b =$ ..... [1]

7. On a map, 2 cm represents 5 km.

(a) Find the actual distance, in km, of a road represented by 5 cm on the map.

(b) A park has an actual area of 128 km^2, calculate its area represented on the map.

Answer (a) .....km [1]

(b) .....cm^2 [2]

8. Solve the following equations.

(a) $\frac{1}{3}y+3=6$,

(b) $\frac{x-3}{3}=\frac{3x+1}{4}$.

Answer (a) y = ... [2]

(b) x = ... [3]

9. Solve the following inequalities.

(a) $5w \leq 20$,

(b) $-2x > -12$.

Answer (a) ..... [1]

(b) ..... [1]

10. Expand and simplify the following algebraic expressions.

(a) $-2(5x-3)$,

(b) $(3a+5)(a-2)$.

Answer (a) ..... [1]

(b) ..... [2]

11. 3 carpenters can build a wardrobe in 2 weeks. Find the number of carpenters required to build the same wardrobe in 6 days.

Answer ..... [2]

12. Factorise the following expressions completely.

(a) $3ab^2 - 9a^2bc$,

(b) $5x^2 - 45$.

Answer (a) ..... [1]

(b) ..... [2]

13. If y is directly proportional to x^2, where $x > 0$, and $y = 10$ when $x = 5$,

(a) find an equation relating y and x,

(b) find the value of y when $x = 6$,

(c) find the value of x when $y = 2.5$.

Answer (a) ..... [2]

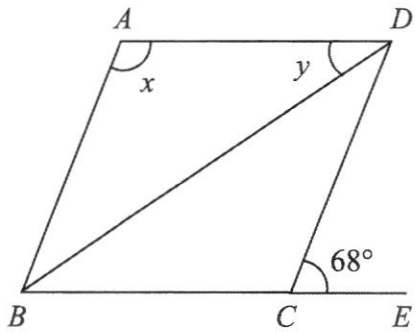
(b) ..... [1]

(c) ..... [1]

14. Simplify $\frac{d-3}{2}+\frac{3d+2}{4}$. Show your working clearly.

Answer ..... [3]

15. In the diagram, BCE is a straight line and $ABCD$ is a rhombus.



By stating the reasons clearly, calculate

(a) x,

(b) y.

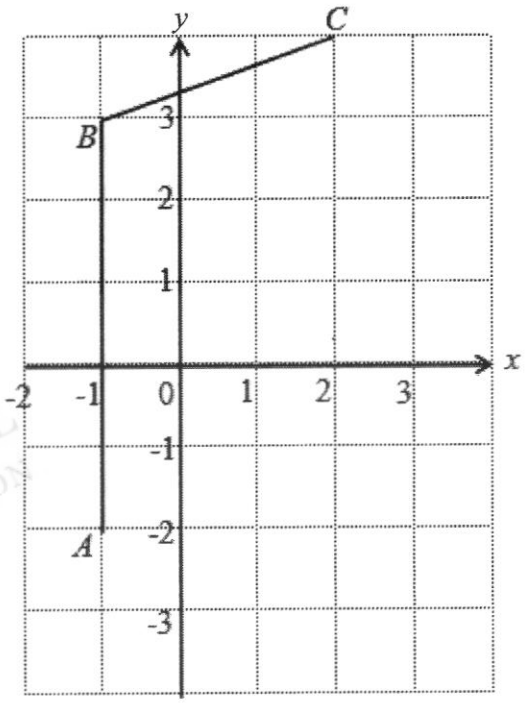
Answer (a) $x =$ .....° [2]

(b) $y =$ .....° [1]

16. Mr Lee drove for $1\frac{1}{2}$ hours at an average speed of 60 km/h. He rested for $\frac{3}{4}$ hour, before continuing the remaining journey of 100 km at a uniform speed of 80 km/h. Find the average speed of his whole journey in km/h.

Answer .....km/h [3]

17. Part of a figure is shown on the grid.



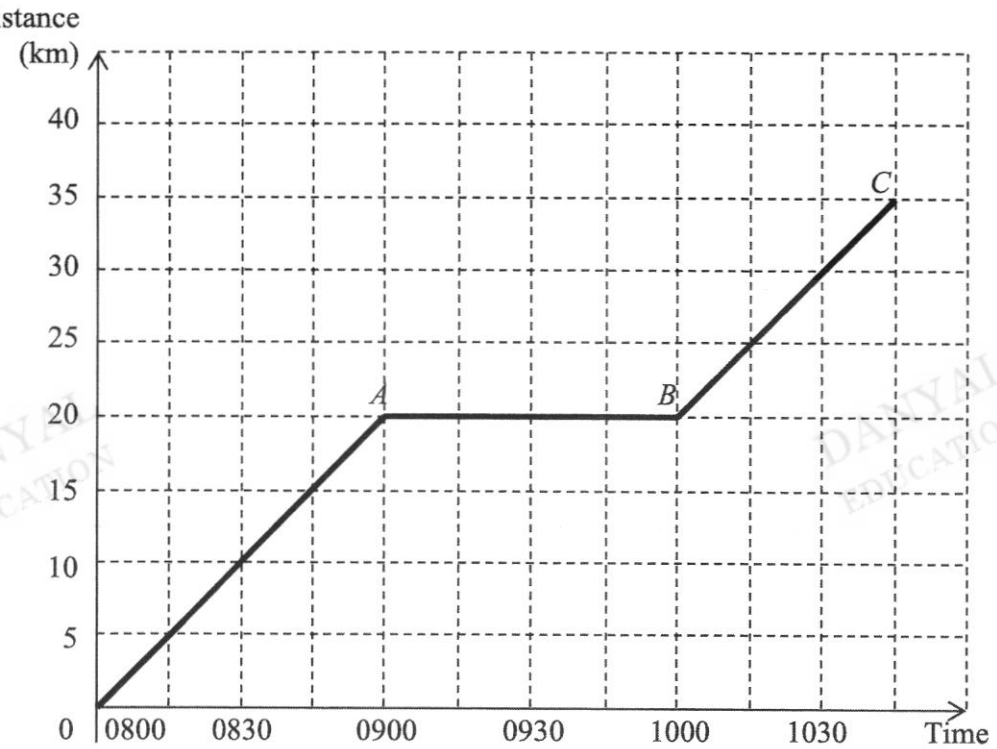
(a) Given that *ABCD* is a parallelogram, mark and label point *D* on the grid.

(b) Calculate the area of *ABCD*.

Answer (a) *Answer on grid* [1]

(b) .....units^2 [1]

18. The travel graph shows the journey taken by a cyclist who left Pasir Ris at 0800 to travel to Jurong. During the journey, the cyclist stopped to rest before continuing his journey.



(a) How long did the cyclist rest?

(b) How far apart are Pasir Ris and Jurong?

(c) State the gradient of AB.

(d) **(i)** Calculate the gradient of BC.

(ii) Explain clearly what the gradient of BC represents.

Answer (a) .....h [1]

(b) .....km [1]

(c) ..... [1]

(d)(i) ..... [1]

(d)(ii) ..... [1]

END OF PAPER

Name:	Register Number:	Class:

BEDOK GREEN SECONDARY SCHOOL

2N

2N

Mid-Year Examination 2018

MATHEMATICS

Paper 2

10 May 2018

1 h 15 min

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number on the question paper.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
Write your working and answers in the spaces provided on the question paper.
If working is needed for any question, it must be shown with the answer.
Omission of essential working will result in loss of marks.

You are expected to use a scientific calculator to evaluate explicit numerical expressions.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

The number of marks is given in brackets [ ] at the end of each question or part question.
The total marks for this paper is 50.

For Examiner's Use
50

This document consists of **10** printed pages including the cover page.

Answer **all** questions.

1. Simplify the following algebraic expressions.

(a) $ab+4a-2ab+5a$,

(b) $\frac{3p}{8}-\frac{3p}{4}+\frac{5p}{6}$,

(c) $x^2-(x+y)(x-y)$.

Answer (a) ..... [1]

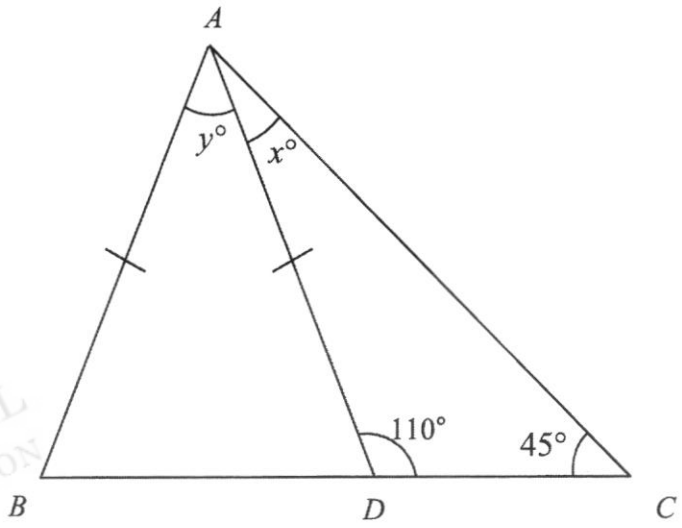
(b) ..... [2]

(c) ..... [2]

2. Expand and simplify $2(2x+y)-3(4x-3y)$.

Answer ..... [3]

3. In the diagram, BDC is a straight line. Find the value of x and of y.



Answer $x =$ ..... [1]

$y =$ ..... [2]

4. **(a)** Convert 25 km/h to m/s.

(b) Express 0.02% as a fraction in its lowest terms.

Answer (a) .....m/s [1]

(b) ..... [1]

5. Simplify

(a) $\dfrac{2pq^2}{6p^2}$,

(b) $\dfrac{5a^2}{ab^2c} \times \dfrac{c^2}{10a^3}$.

Answer (a) ..... [1]

(b) ..... [2]

6. **(a)** Factorise $2a^2 + 7a + 6$ completely.

(b) Using your answer in part **(a)**, simplify $\dfrac{3a+6}{3a} \times \dfrac{2a+3}{2a^2+7a+6}$.

Answer (a) ..... [1]

(b) ..... [2]

7. Given that s is inversely proportional to t, and $s = 9$ when $t = 5$,

(a) express s in terms of t,

(b) calculate the value of t when $s = 15$.

Answer (a) $s =$ ..... [2]

(b) $t =$ ..... [1]

8. Junxing is charged \$55 for 600 minutes of outgoing calls made on his handphone. Calculate the amount he has to pay for making 420 minutes of outgoing calls.

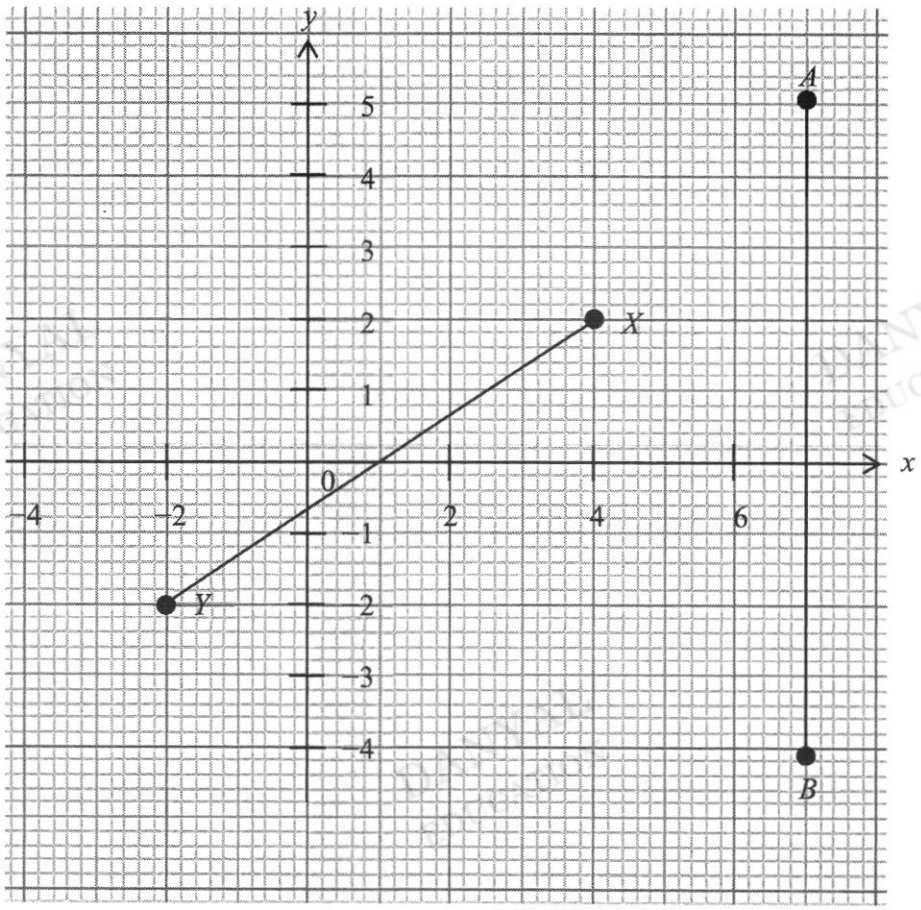
Answer \$ ..... [2]

9. Lines AB and XY are drawn on the grid below.

(a) Write down the coordinates of point X.

(b) Find the gradient of line XY.

(c) State the equation of line AB.



Answer (a) (....., ...) [1]

(b) ..... [1]

(c) ..... [1]

10. Annie was asked to expand $(p+q)^2$ and she answered "p^2+q^2".

Explain why Annie's answer is wrong by expanding $(p+q)^2$.

Answer ..... [1]

11. **(a)** Expand and simplify $(x-5)^2$.

(b) **Hence** find the value of 95^2 without using a calculator.

Answer (a) ..... [1]

(b) ..... [2]

12. The cost price of a TV is \$550. If the shop marks up the price by 20% and then gives a discount of 5% on the marked price, find

(a) **(i)** the marked price of the TV,

(ii) the final selling price of the TV.

(b) Express the shop's profit as a percentage of the cost price.

Answer (a)(i) \$..... [2]

(a)(ii) \$..... [2]

(b) .....% [2]

13. A bus can ferry a maximum of 30 students per trip. A school needs to ferry 285 students to the adventure campsite.

(a) By letting x be the number of buses, form an inequality in x.

(b) Solve the inequality.

(c) What is the minimum number of buses required?

Answer (a) ..... [1]

(b) ..... [1]

(c) ..... [1]

14. Jerry is x years old. Priscilla is 6 years older than Jerry. Siti is half as old as Priscilla.

(a) Write down, in terms of x, the age of

(i) Priscilla, and

(ii) Siti.

(b) Given that the sum of their ages is 29, form an equation in x.

(c) Solve the equation and write down Siti's age.

Answer (a)(i) ..... [1]

(a)(ii) ..... [1]

(b) *answer in space provided* [1]

(c) x = ... [2]

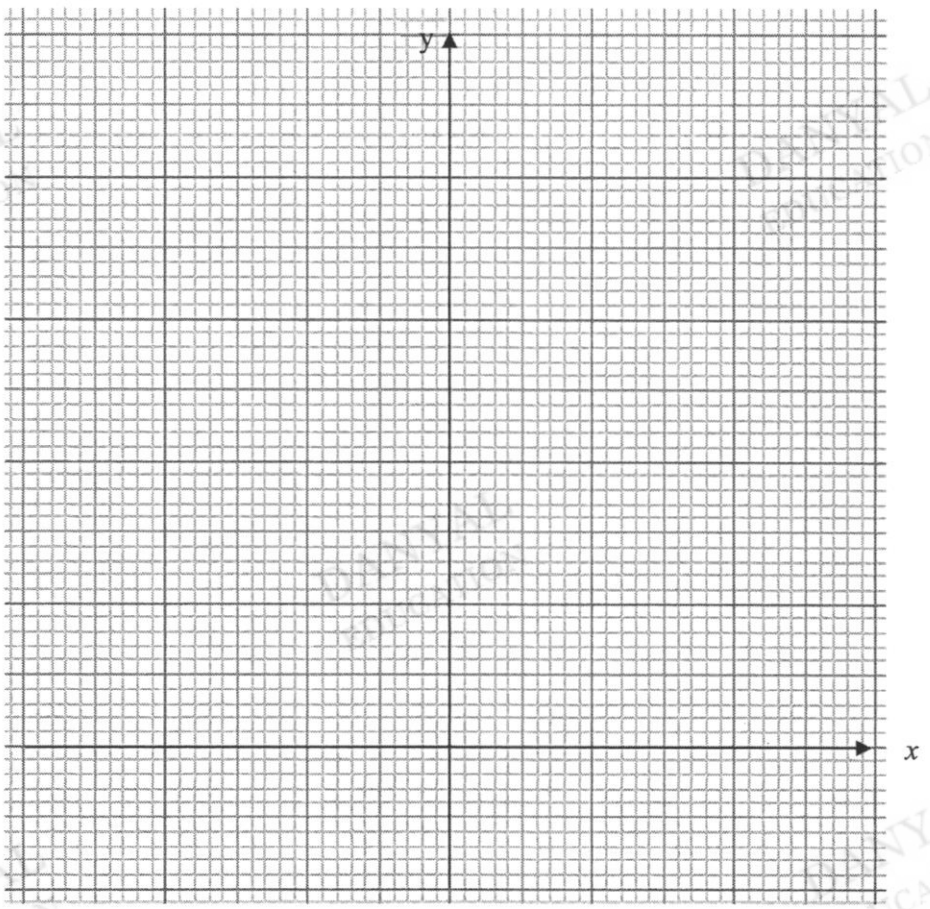
Siti's age = ... [1]

15. The table below shows the corresponding x and y values for the equation $y = -2x + 5$.

x	-2	0	1	2
y	p	5	q	1

(a) Find the value of p and of q.

(b) On the grid below,
using a scale of 2 cm to represent 1 unit, draw a horizontal x-axis for $-2 \le x \le 2$ and using a scale of 1 cm to represent 1 unit, draw a vertical y-axis for $1 \le y \le 9$, draw the graph of $y = -2x + 5$.



Answer (a) p = ... [1]

q = ... [1]

(b) *answer on graph* [2]

END OF PAPER

Name: ANSWERS	Register Number:	Class:

BEDOK GREEN SECONDARY SCHOOL

2N 2N

Mid-Year Examination 2018

MATHEMATICS

Paper 1

9 May 2018

1 h 15 min

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number on the question paper.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
Write your working and answers in the spaces provided on the question paper.
If working is needed for any question, it must be shown with the answer.
Omission of essential working will result in loss of marks.

You are expected to use a scientific calculator to evaluate explicit numerical expressions.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

The number of marks is given in brackets [ ] at the end of each question or part question.
The total marks for this paper is 50.

For Examiner's Use
50

This document consists of **10** printed pages including the cover page.

[Turn Over

Answer **all** questions.

1. Express the ratio 36 seconds : 3 minutes : 0.5 hour in its simplest form.

Answer:

36 : 180 : 1800 ---[M1]
1 : 5 : 50 ---[A1]

Answer ..... : ..... : ..... [2]

2. Write the following numbers in order of size, starting with the **smallest**.

$$-\frac{9}{10},\ \sqrt{9},\ 0.909,\ 0.\dot{9},\ 0.09$$

Answer:

$-\frac{9}{10}$, 0.09, 0.909, $0.\dot{9}$, $\sqrt{9}$ ---[B2 for all in correct order]

Answer ....., ..., ..., ..., ... [2]

3. Round off
(a) 13788 to 1 significant figure,
(b) 0.03846 to 2 significant figures.

Answer:

(a) 10 000 (1 s.f.) ---[B1]
(b) 0.038 (2 s.f.) ---[B1]

Answer (a) ..... [1]

(b) ..... [1]

4. Evaluate $\frac{2}{3}[-2-4(-3-5)]$ without using a calculator, showing your working clearly.

Answer:

$\frac{2}{3}[-2-4(-3-5)]$

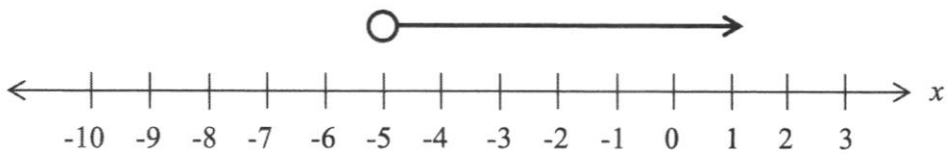
$=\frac{2}{3}[-2+32]$-----[M1]

$=\frac{2}{3}[30]$

$=20$ ------[A1]

Answer ..... [2]

5. A number line is given below.



(a) Write down the inequality represented by the number line above.
(b) Write down the smallest prime number that satisfies the inequality.

Answer:

(a) $x > -5$ ---[B1]
(b) 2 ---[B1]

Answer (a) ..... [1]

(b) ..... [1]

6. Given that x and y are in direct proportion, find the values of a and b.

x	10	20	b
y	3	a	15

Answer:

(a) $a = 6$ ---[B1]
(b) $b = 50$ ---[B1]

Answer $a =$ ..... [1]

$b =$ ..... [1]

7. On a map, 2 cm represents 5 km.

(a) Find the actual distance, in km, of a road represented by 5 cm on the map.

(b) A park has an actual area of 128 km^2, calculate its area represented on the map.

Answer:

(a) 1 cm : 2.5 km
5 cm : 12.5 km ---[B1]

(b) $1cm^2 : 6.25\ km^2$ ---[M1]

$$\text{area on map} = \frac{128}{6.25} = 20.48\ cm^2 \text{ ---[A1]}$$

Answer (a) .....km [1]

(b) .....cm^2 [2]

8. Solve the following equations.

(a) $\frac{1}{3}y + 3 = 6$,

(b) $\frac{x-3}{3} = \frac{3x+1}{4}$.

Answer:

(a)

$\frac{1}{3}y + 3 = 6$

$\frac{1}{3}y = 3$ ---[M1]

$y = 9$ ---[A1]

(b)

$\frac{x-3}{3} = \frac{3x+1}{4}$

$4(x-3) = 3(3x+1)$ ---[M1]

$4x - 12 = 9x + 3$ ---[M1]

$5x = -15$

$x = -3$ ---[A1]

Answer (a) y = ... [2]

(b) x = ... [3]

9. Solve the following inequalities.

(a) $5w \leq 20$,

(b) $-2x > -12$.

Answer:

(a)
$5w \leq 20$
$w \leq 4$ ---[B1]

(b)
$-2x > -12$
$x < 6$ ---[B1]

Answer (a) ..... [1]

(b) ..... [1]

10. Expand and simplify the following algebraic expressions.

(a) $-2(5x-3)$,

(b) $(3a+5)(a-2)$.

Answer:

(a)
$-2(5x-3)$
$= -10x + 6$ ---[B1]

(b)
$(3a+5)(a-2)$
$= 3a^2 - 6a + 5a - 10$ ---[M1]
$= 3a^2 - a - 10$ ---[A1]

Answer (a) ..... [1]

(b) ..... [2]

11. 3 carpenters can build a wardrobe in 2 weeks. Find the number of carpenters required to build the same wardrobe in 6 days.

Answer:

14 days – 3 carpenters
1 day – 42 carpenters ---[M1]
6 days – 7 carpenters ---[A1]

Answer ..... [2]

12. Factorise the following expressions completely.

(a) $3ab^2 - 9a^2bc$,

(b) $5x^2 - 45$.

Answer:

(a)
$3ab^2 - 9a^2bc$
$= 3ab(b - 3ac)$ ---[B1]

(b)
$5x^2 - 45$
$= 5(x^2 - 9)$ ---[M1]
$= 5(x - 3)(x + 3)$ ---[A1] or [B2 for final expression]

Answer (a) ..... [1]

(b) ..... [2]

13. If y is directly proportional to x^2, where $x > 0$, and $y = 10$ when $x = 5$,

(a) find an equation relating y and x,

(b) find the value of y when $x = 6$,

(c) find the value of x when $y = 2.5$.

Answer:

(a)

$y = kx^2$

When $y = 10$ and $x = 5$,

$10 = k(5)^2$

$k = \frac{2}{5}$ ---[M1]

$y = \frac{2}{5}x^2$ ---[A1]

(b)

When $x = 6$,

$y = \frac{2}{5}(6)^2$

$y = 14\frac{2}{5}$ ---[B1]

(c)

When y = 2.5,

$2.5 = \frac{2}{5}(x)^2$

$x^2 = 6.25$

$x = 2.5$ ---[B1]

Answer (a) ..... [2]

(b) ..... [1]

(c) ..... [1]

14. Simplify $\frac{d-3}{2} + \frac{3d+2}{4}$. Show your working clearly.

Answer:

$\frac{d-3}{2} + \frac{3d+2}{4}$

$= \frac{2(d-3)}{4} + \frac{3d+2}{4}$ ---[M1]

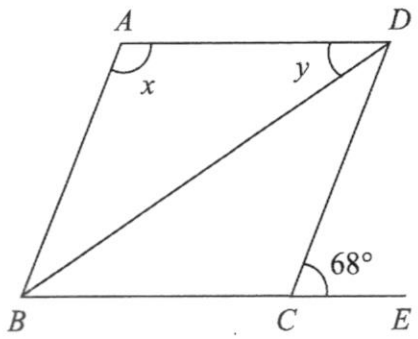
$= \frac{2d-6}{4} + \frac{3d+2}{4}$ ---[M1]

$= \frac{2d-6+3d+2}{4}$

$= \frac{5d-4}{4}$ ---[A1]

Answer ..... [3]

15. In the diagram, BCE is a straight line and $ABCD$ is a rhombus.



By stating the reasons clearly, calculate
(a) x,
(b) y.

Answer:

(a)
$\angle BCD = 180^\circ - 68^\circ$ (adj. angles on a str. line)
$\angle BCD = 112^\circ$ ---[M1]
$x = 112$ (opp angles in a //gram) ---[A1]

(b)
$\angle ADB = \dfrac{180^\circ - 112^\circ}{2}$ (base angle of isos. $\triangle$)
$y = 34^\circ$ ---[A1]

Answer (a) $x =$ .....° [2]

(b) $y =$ .....° [1]

16. Mr Lee drove his car for $1\frac{1}{2}$ hours at 60 km/h. He rested for $\frac{3}{4}$ hour, before continuing on the remaining journey of 100km at a uniform speed of 80 km/h. Find the average speed of his whole journey in km/h.

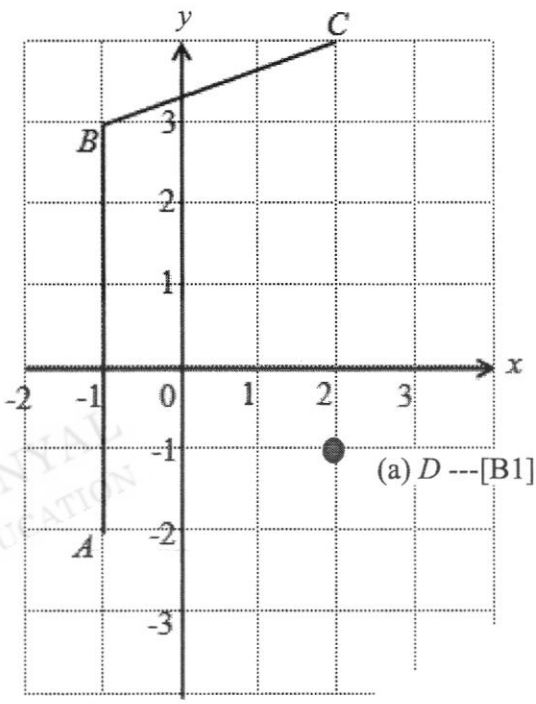
Answer:
Distance for first part $= 60 \times 1.5 = 90$km
Time taken for second part $= \dfrac{100}{80} = 1.25$h
} [M1] for either working

Average speed $= \dfrac{90+100}{1.5+0.75+1.25}$ ---[M1]

$= 54\frac{2}{7}$ km/h ---[A1]

Answer .....km/h [3]

17. Part of a figure is shown on the grid.



(a) D ---[B1]

(a) Given that $ABCD$ is a parallelogram, mark and label point D on the grid.

(b) Calculate the area of $ABCD$.

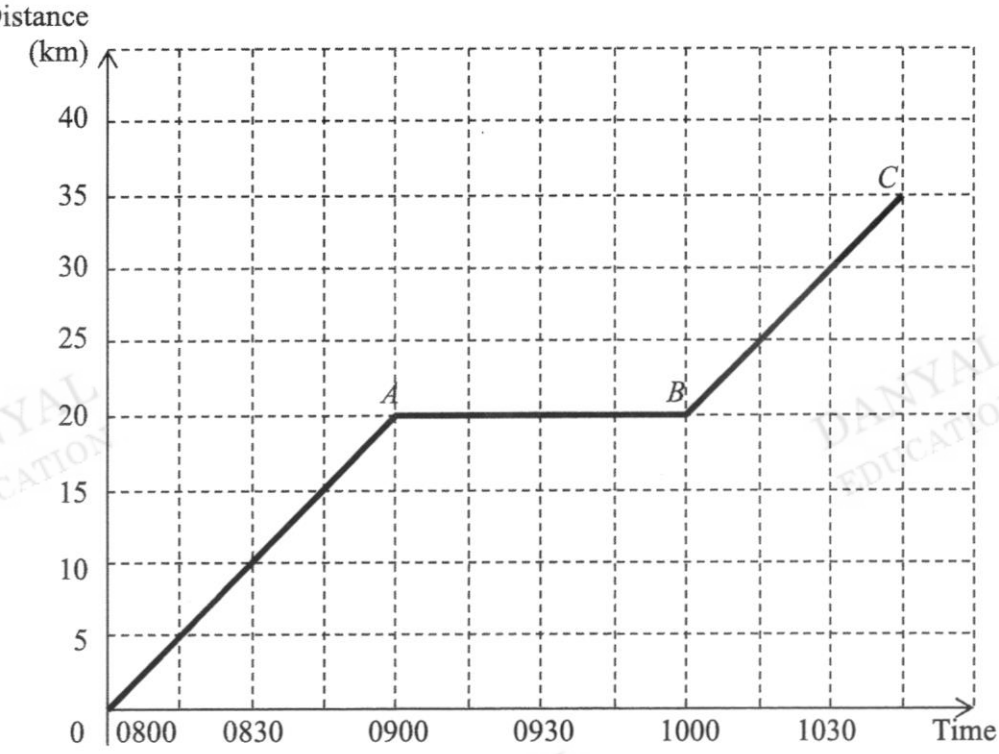
Answer:

(b)
$area = 3 \times 5 = 15$ units^2 ---[B1]

Answer (a) *Answer on grid* [1]

(b) .....units^2 [1]

18. The travel graph shows the journey taken by a cyclist who left Pasir Ris at 0800 to travel to Jurong. During the journey, the cyclist stopped to rest before continuing his journey.



(a) How long did the cyclist rest?
(b) How far apart are Pasir Ris and Jurong?
(c) State the gradient of *AB*.
(d) **(i)** Calculate the gradient of *BC*.
(ii) Explain clearly what the gradient of *BC* represents.

Answer:
(a) 1 hour ---[B1]
(b) 35 km ---[B1]
(c) Gradient = 0 ---[B1]
(d)(i)
Gradient $= \frac{15}{0.75}$ or $= \frac{15}{45}$
$= 20$ (km/h)---[B1] $= \frac{1}{3}$ (km/min)
(c)(ii) It represents the speed of the cyclist travelling from *B* to *C*. ---[B1]

Answer (a) .....h [1]

(b) ...,,,.....km [1]

(c) ..... [1]

(d)(i) ..... [1]

(d)(ii) ..... [1]

END OF PAPER

Name: ANSWERS	Register Number:	Class:

BEDOK GREEN SECONDARY SCHOOL

2N 2N

Mid-Year Examination 2018

MATHEMATICS

Paper 2

10 May 2018

1 h 15 min

Candidates answer on the Question Paper.

READ THESE INSTRUCTIONS FIRST

Write your name, class and register number on the question paper.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams or graphs.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.
Write your working and answers in the spaces provided on the question paper.
If working is needed for any question, it must be shown with the answer.
Omission of essential working will result in loss of marks.

You are expected to use a scientific calculator to evaluate explicit numerical expressions.
If the degree of accuracy is not specified in the question, and if the answer is not exact, give the answer to three significant figures. Give answers in degrees to one decimal place.
For π, use either your calculator value or 3.142, unless the question requires the answer in terms of π.

The number of marks is given in brackets [ ] at the end of each question or part question.
The total marks for this paper is 50.

For Examiner's Use
50

[Turn Over

Answer **all** questions.

1. Simplify the following algebraic expressions.

(a) $ab+4a-2ab+5a$,

(b) $\frac{3p}{8}-\frac{3p}{4}+\frac{5p}{6}$,

(c) $x^2-(x+y)(x-y)$.

Answer:
(a)
$ab+4a-2ab+5a$
$=9a-ab$ ---[B1]

(b)
$\frac{3p}{8}-\frac{3p}{4}+\frac{5p}{6}$
$=\frac{9p}{24}-\frac{18p}{24}+\frac{20p}{24}$ ---[M1]
$=\frac{11p}{24}$ ---[A1]

Answer:

(b)
$x^2-(x+y)(x-y)$
$=x^2-(x^2-y^2)$ ---[M1]
$=x^2-x^2+y^2$
$=y^2$ ---[A1]

Answer (a) ..... [1]

(b) ..... [2]

(c) ..... [2]

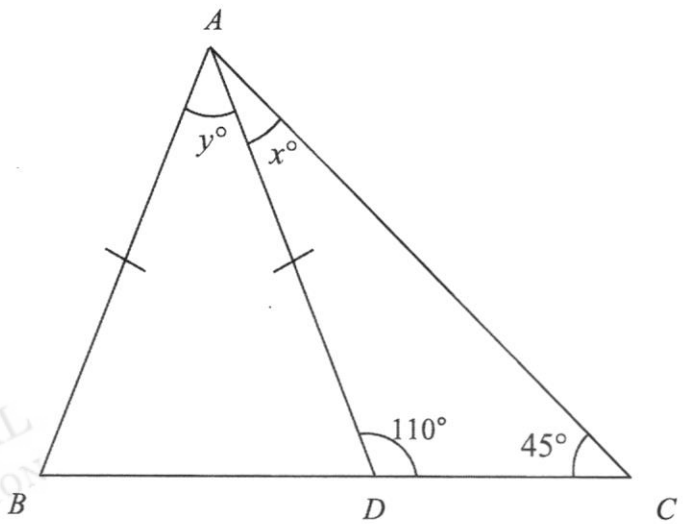
2. Expand and simplify $2(2x+y)-3(4x-3y)$.

Answer:

$2(2x+y)-3(4x-3y)$
$=4x+2y-12x+9y$ ---[M1 for each expansion]
$=-8x+11y$ ---[A1]

Answer ..... [3]

3. In the diagram, BDC is a straight line. Find the value of x and of y.



Answer:

$x = 180 - 110 - 45$ (angle sum of triangle)
$= 25$ ---[B1]

$\angle BDA = 180 - 110$ (adj. angles on a str. line)
$= 70$ [M1]

$y = 180 - 2(70)$ (angle sum of triangle)
$= 40$ ---[A1]

Answer $x =$ ..... [1]

$y =$ ..... [2]

4. **(a)** Convert 25 km/h to m/s.
(b) Express 0.02% as a fraction in its lowest terms.

Answer:

(a)
$\frac{25}{1}\text{km/h} = \frac{25\times1000}{1\times3600}\text{m/s}$
$= = 6\frac{17}{18}\text{m/s}$ ---[B1]

Answer:

(b)
$0.02\% = \frac{0.02}{100}$
$= \frac{1}{5000}$ ---[B1]

Answer (a) .....m/s [1]

(b) ..... [1]

5. Simplify

(a) $\dfrac{2pq^2}{6p^2}$,

(b) $\dfrac{5a^2}{ab^2c}\times\dfrac{c^2}{10a^3}$.

Answer:

(a)

$\dfrac{2pq^2}{6p^2}=\dfrac{q^2}{3p}$ ---[B1]

Answer:

(b)

$\dfrac{5a^2}{ab^2c}\times\dfrac{c^2}{10a^3}=\dfrac{5a^2c^2}{10a^4b^2c}$ ---[M1]

$=\dfrac{c}{2a^2b^2}$ ---[A1]

Answer (a) ..... [1]

(b) ..... [2]

6. **(a)** Factorise $2a^2+7a+6$ completely.

(b) Using your answer in part **(a)**, simplify $\dfrac{3a+6}{3a}\times\dfrac{2a+3}{2a^2+7a+6}$.

Answer:

(a)

$2a^2+7a+6=(2a+3)(a+2)$ ---[B1]

(b)

$\dfrac{3a+6}{3a}\times\dfrac{2a+3}{2a^2+7a+6}=\dfrac{3(a+2)}{3a}\times\dfrac{2a+3}{(2a+3)(a+2)}$ ---[M1]

$=\dfrac{1}{a}$ ---[A1]

Answer (a) ..... [1]

(b) ..... [2]

7. Given that s is inversely proportional to t, and $s = 9$ when $t = 5$,

(a) express s in terms of t,

(b) calculate the value of t when $s = 15$.

Answer:

(a)

$s = \frac{k}{t}$

$9 = \frac{k}{5}$

$k = 45$ ---[M1]

$s = \frac{45}{t}$ ---[A1]

(b)

$15 = \frac{45}{t}$

$t = 3$ ---[B1]

Answer (a) $s =$ ..... [2]

(b) $t =$ ..... [1]

8. Junxing is charged \$55 for 600 minutes of outgoing calls made on his handphone. Calculate the amount he has to pay for making 420 minutes of outgoing calls.

Answer:

600 mins - \$55

1 min - $\$\frac{55}{600}$ ---[M1]

420 mins - \$38.50 ---[A1]

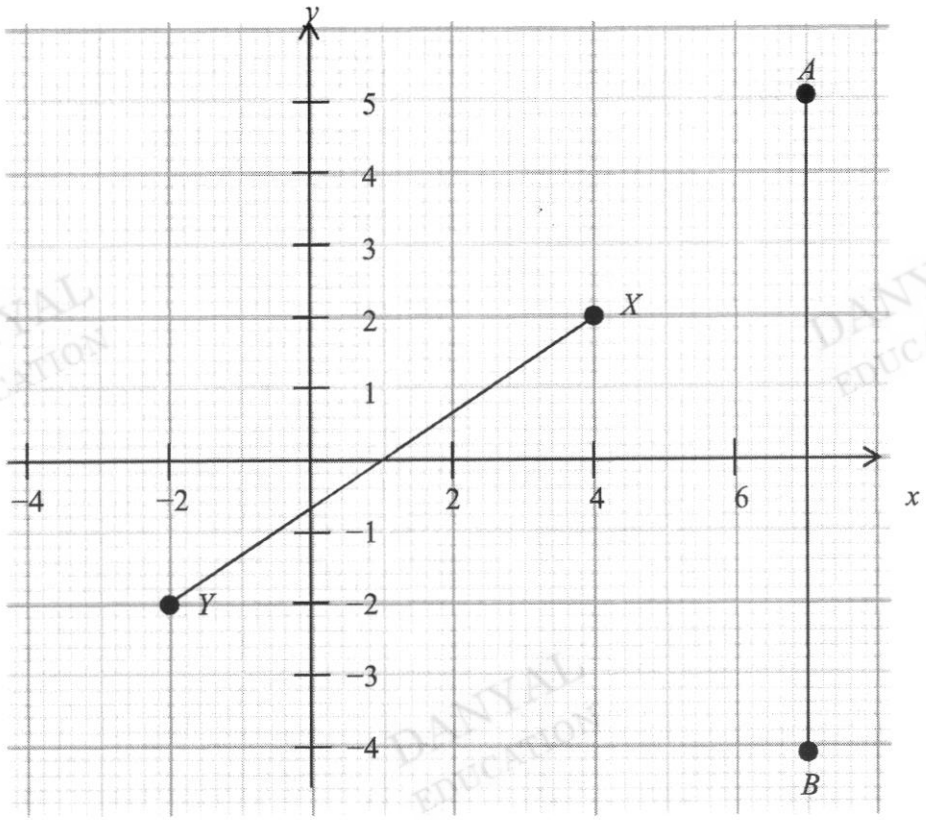
Answer \$ ..... [2]

9. Lines AB and XY are drawn on the grid below.

(a) Write down the coordinates of point X.

(b) Find the gradient of line XY.

(c) State the equation of line AB.



Answer:

(a) (4 , 2)

(b) $\frac{4}{6}=\frac{2}{3}$ ---[B1]

(c) $x=7$ ---[B1]

Answer (a) (....., ...) [1]

(b) ..... [1]

(c) ..... [1]

10. Annie was asked to expand $(p+q)^2$ and she answered "p^2+q^2".

Explain why Annie's answer is wrong by expanding $(p+q)^2$.

Answer:

$(p+q)^2 = p^2+2pq+q^2$ ---[B1]

Answer ..... [1]

11. **(a)** Expand and simplify $(x-5)^2$.

(b) **Hence** find the value of 95^2 without using a calculator.

Answer:

(a)

$(x-5)^2 = x^2-10x+25$ ---[B1]

(b)

$(x-5)^2 = x^2-10x+25$.

$(100-5)^2 = 100^2-10(100)+25$ ---[M1 for identifying $x = 100$]

$=10000 - 1000 + 25$

$=9025$ ---[A1]

Answer (a) ..... [1]

(b) ..... [2]

12. The cost price of a TV is \$550. If the shop marks up the price by 20% and then gives a discount of 5% on the marked price, find

(a) **(i)** the marked price of the TV,
(ii) the final selling price of the TV.

(b) Express the shop's profit as a percentage of the cost price.

Answer:

(a)
$\$550 \times 120\%$ ---[M1]
$= \$660$ ---[B1]

(b)
$\$660 \times 95\%$ ---[M1]
$= \$627$ ---[A1]

(c)
$\frac{627 - 550}{550} \times 100\%$ ---[M1]
$= 14\%$ ---[A1]

Answer (a)(i) \$..... [2]

(a)(ii) \$..... [2]

(b) .....% [2]

13. A bus can ferry a maximum of 30 students per trip. A school needs to ferry 285 students to the adventure campsite.

(a) By letting x be the number of buses, form an inequality in x.

(b) Solve the inequality.

(c) What is the minimum number of buses required?

Answer:

(a)
$30x \geq 285$ ---[B1]

(b)
$x \geq 9.5$ ---[B1]

(c)
Minimum no. of buses = 10 ---[B1]

Answer (a) ..... [1]

(b) ..... [1]

(c) ..... [1]

14. Jerry is x years old. Priscilla is 6 years older than Jerry. Siti is half as old as Priscilla.

(a) Write down, in terms of x, the age of

(i) Priscilla, and

(ii) Siti.

(b) Given that the sum of their ages is 29, form an equation in x.

(c) Solve the equation and write down Siti's age.

Answer:

(a)(i)

$x+6$ ---[B1]

(a)(ii)

$\frac{x+6}{2}$ ---[B1]

(b)

$x+(x+6)+(\frac{x+6}{2})=29$ ---[B1]

(c)

$x+(x+6)+(\frac{x+6}{2})=29$

$\frac{2x+2(x+6)+(x+6)}{2}=29$ ---[M1]

$5x+18=58$

$5x=40$

$x=8$ ---[A1]

Siti's age $=\frac{8+6}{2}=7$ ---[B1]

Answer (a)(i) ..... [1]

(a)(ii) ..... [1]

(b) *answer in space provided* [1]

(c) x = ... [2]

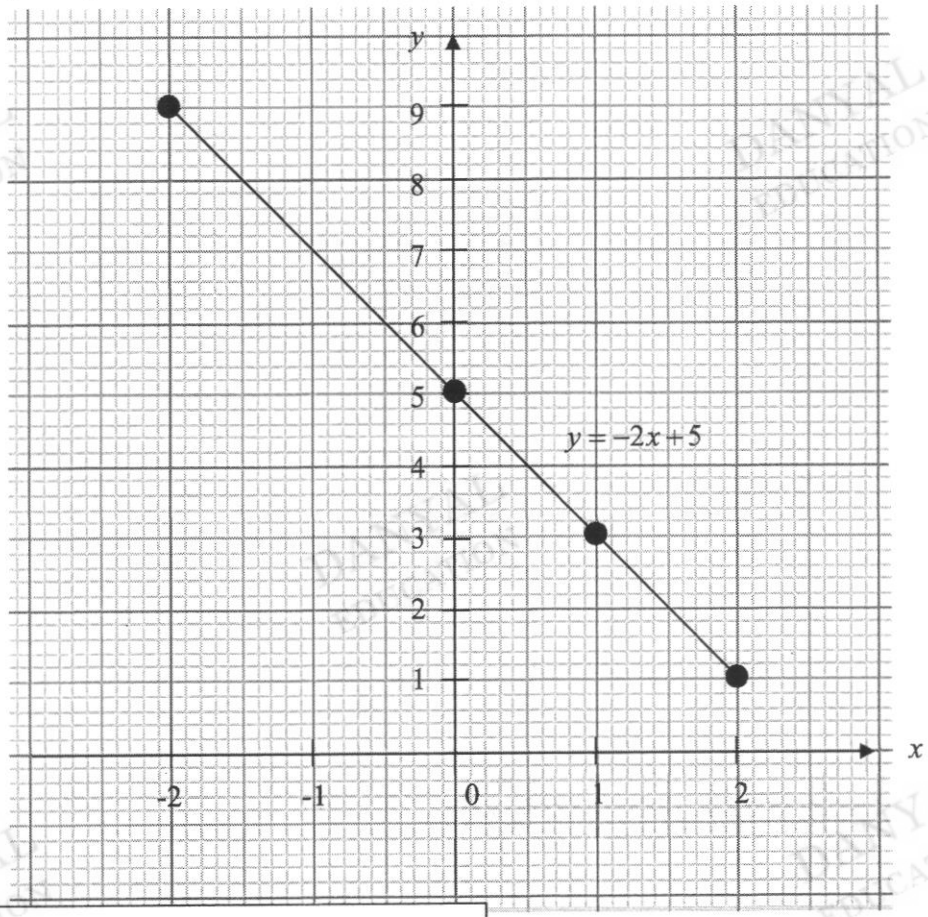
Siti's age = ... [1]

15. The table below shows the corresponding x and y values for the equation $y = -2x + 5$.

x	-2	0	1	2
y	p	5	q	1

(a) Find the value of p and of q.

(b) On the grid below,
using a scale of 2 cm to represent 1 unit, draw a horizontal x-axis for $-2 \le x \le 2$ and using a scale of 1 cm to represent 1 unit, draw a vertical y-axis for $1 \le y \le 9$, draw the graph of $y = -2x + 5$.



Answer:

(a) $p = 9$ ---[B1]
$q = 3$ ---[B1]

(b)
correct scale on both axes ---[B1]
correct points & straight line ---[B1]

Answer (a) $p =$ ..... [1]

$q =$ ..... [1]

(b) answer on graph [2]

END OF PAPER