

Nama:

Tingkatan:



SEKOLAH BERASRAMA PENUH
BAHAGIAN PENGURUSAN
SEKOLAH BERASRAMA PENUH/ KLUSTER
KEMENTERIAN PELAJARAN MALAYSIA

PEPERIKSAAN PERCUBAAN PMR SELARAS SBP 2008
TINGKATAN 3
MATEMATIK
Kertas 2

50/2

Ogos 2008

$1\frac{3}{4}$ jam

Satu jam empat puluh lima minit

JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU

1. Tuliskan nama dan tingkatan anda pada ruang yang disediakan.
2. Kertas soalan ini adalah dalam bahasa Inggeris.
3. Kertas soalan ini mengandungi **20** soalan.
4. Jawab **semua** soalan.
5. Jawapan anda hendaklah ditulis pada ruang yang disediakan dalam kertas soalan ini.
6. Tunjukkan langkah-langkah penting dalam kerja mengira anda. Ini boleh membantu untuk mendapatkan markah.
7. Jika anda hendak menukar jawapan, batalkan jawapan yang telah dibuat. Kemudian tulis jawapan yang baru.
8. Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.
9. Markah yang diperuntukkan bagi setiap soalan ditunjukkan dalam kurungan.
10. Penggunaan kalkulator **tidak** dibenarkan.
11. Serahkan kertas soalan ini kepada pengawas peperiksaan pada akhir neneriksaan.

Untuk Kegunaan Pemeriksa		
Kod Pemeriksa:		
Soalan	Markah Penuh	Markah Diperoleh
1	2	
2	2	
3	3	
4	3	
5	3	
6	3	
7	3	
8	2	
9	5	
10	5	
11	3	
12	2	
13	2	
14	3	
15	2	
16	3	
17	4	
18	3	
19	3	
20	4	
Jumlah		

Kertas soalan ini mengandungi 17 halaman bercetak

The following formulae may be helpful in answering the questions. The symbols given are the ones commonly used.

RELATIONS

1 $a^m \times a^n = a^{m+n}$

2 $a^m \div a^n = a^{m-n}$

3 $(a^m)^n = a^{mn}$

4 Distance = $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

5 Midpoint

$$(x, y) = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

6 Average speed = $\frac{\text{distance travelled}}{\text{time taken}}$

7 Mean = $\frac{\text{sum of data}}{\text{number of data}}$

8 Pythagoras Theorem

$$c^2 = a^2 + b^2$$

SHAPE AND SPACE

1 Area of rectangle = length \times width

2 Area of triangle = $\frac{1}{2} \times$ base \times height

3 Area of parallelogram = base \times height

4 Area of trapezium = $\frac{1}{2} \times$ sum of parallel sides \times height

5 Circumference of circle = $\pi d = 2\pi r$

- 6 Area of circle = πr^2
- 7 Curved surface area of cylinder = $2\pi rh$
- 8 Surface area of sphere = $4\pi r^2$
- 9 Volume of right prism = cross sectional area \times length
- 10 Volume of cuboid = length \times width \times height
- 11 Volume of cylinder = $\pi r^2 h$
- 12 Volume of cone = $\frac{1}{3}\pi r^2 h$
- 13 Volume of sphere = $\frac{4}{3}\pi r^3$
- 14 Volume of right pyramid = $\frac{1}{3} \times$ base area \times height
- 15 Sum of interior angles of a polygon = $(n - 2) \times 180^\circ$
- 16
$$\frac{\text{arc length}}{\text{circumference of circle}} = \frac{\text{angle subtended at centre}}{360^\circ}$$
- 17
$$\frac{\text{area of sector}}{\text{area of circle}} = \frac{\text{angle subtended at centre}}{360^\circ}$$
- 18 Scale factor, $k = \frac{PA'}{PA}$
- 19 Area of image = $k^2 \times$ area of object

Answer **all** questions

1 Calculate the value of $26 - 6(-16 \div 4 + 9)$

[2 marks]

Answer:

1

2

2 Calculate the value of $\left(1\frac{3}{4} - \frac{1}{2}\right) \times 0.56$

[2 marks]

Answer:

2

2

3 (a) Find the value of $(-0.5)^3$

(b) Calculate the value of $\left(\sqrt[3]{\frac{1}{8}} - \sqrt{0.64}\right)^2$

[3 marks]

Answer:

(a)

(b)

3

3

[Lihat sebelah
SULIT

- 4 (a) Expand $3k\left(k + \frac{1}{3}\right)$
- (b) Simplify $(3e - 4)^2 + 4(e - 1)$

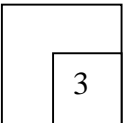
[3 marks]

Answer:

(a)

(b)

4



- 5 Factorise completely

- (a) $p - pr$
- (b) $m^3n - mn$

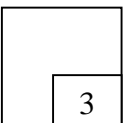
[3 marks]

Answer:

(a)

(b)

5



SULIT

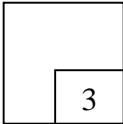
For
Examiner's
Use

- 6 Express $\frac{9cd}{4d^2} - \frac{2c+3}{2d}$ as a single fraction in its simplest form.

[3 marks]

Answer:

6



- 7 Solve each of the following equations:

(a) $5 + n = -4n$

(b) $\frac{9y - 5}{2} = y + 4$

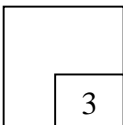
[3 marks]

Answer:

(a)

(b)

7

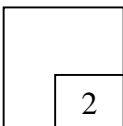


- 8 Given $V = 3mr^3$. Express r in terms of m and V .

[2 marks]

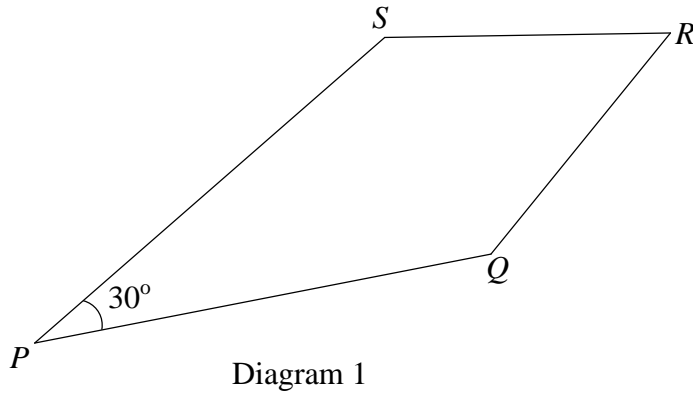
Answer:

8



[Lihat sebelah
SULIT

9 Diagram 1 shows a kite PQRS.

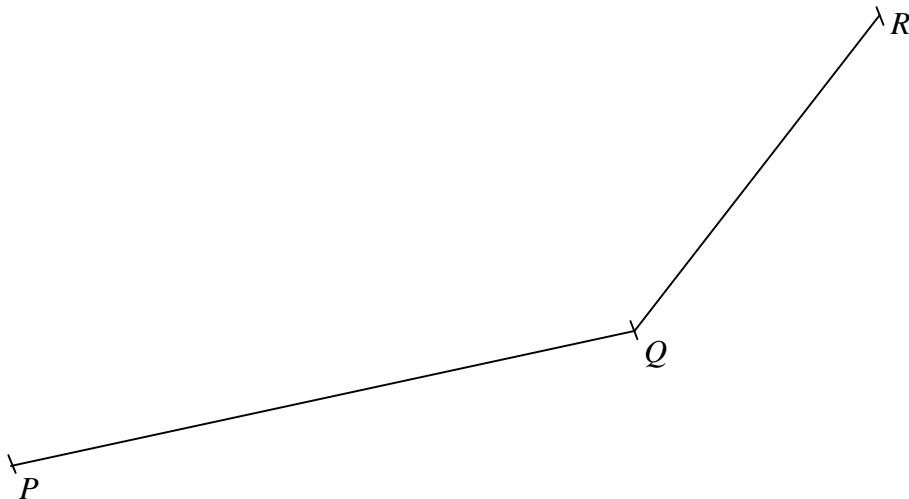


[5 marks]

- (a) Using only a ruler and a pair of compasses, construct Diagram 1 using the measurements given. Begin from the straight lines PQ and QR provided in the answer space.
- (b) Construct a perpendicular line ST from the point S to PQ.
- (c) Based on the Diagram constructed in 9 (i), (ii), measure the length, in cm of ST.

Answer:

(a), (b)



(c) ST =

9
5

For
Examiner's
Use

10 Diagram 2 in the answer space shows a square $ABCD$ drawn on a grid of equal squares with sides of one unit.

X , Y and Z are three moving points in the diagram.

- (a) X is the point are which moves such that $AX = CX$. By using the letters in the diagram state the locus of X .
- (b) On the diagram, draw;
 - (i) the locus for the point Y that is constantly 4 units from the point E .
 - (ii) the locus for the point Z that is constantly 2 units from the straight line FEG .
- (c) Hence, state the number of intersection of the locus of Y and the locus of Z .

[5 marks]

Answer:

- (a)
- (b) (i), (ii)

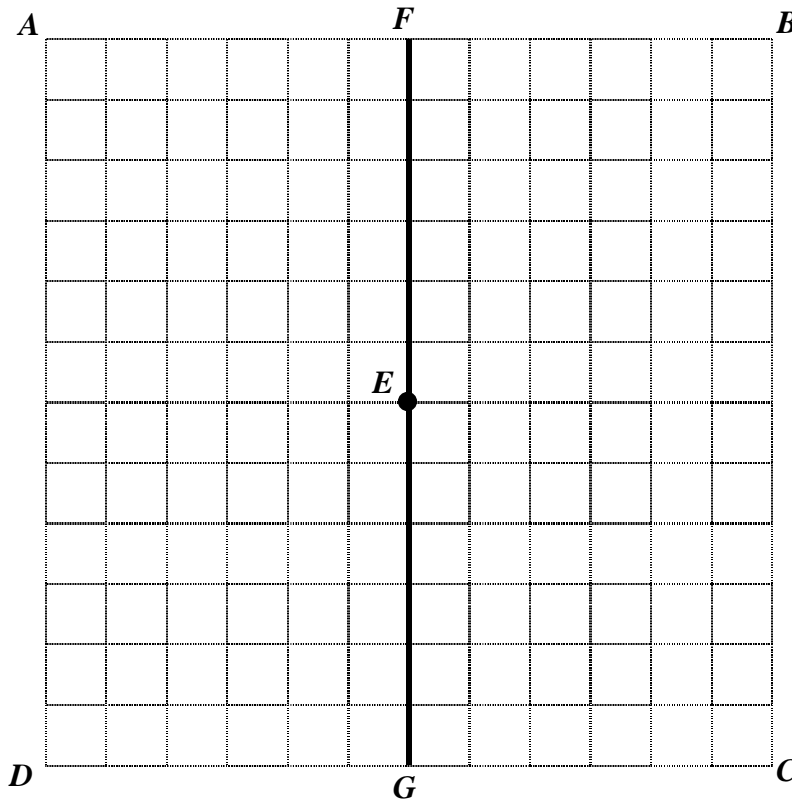
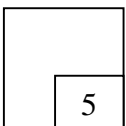


Diagram 2

- (c)

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10



11 Diagram 3 shows a Cartesian plane.

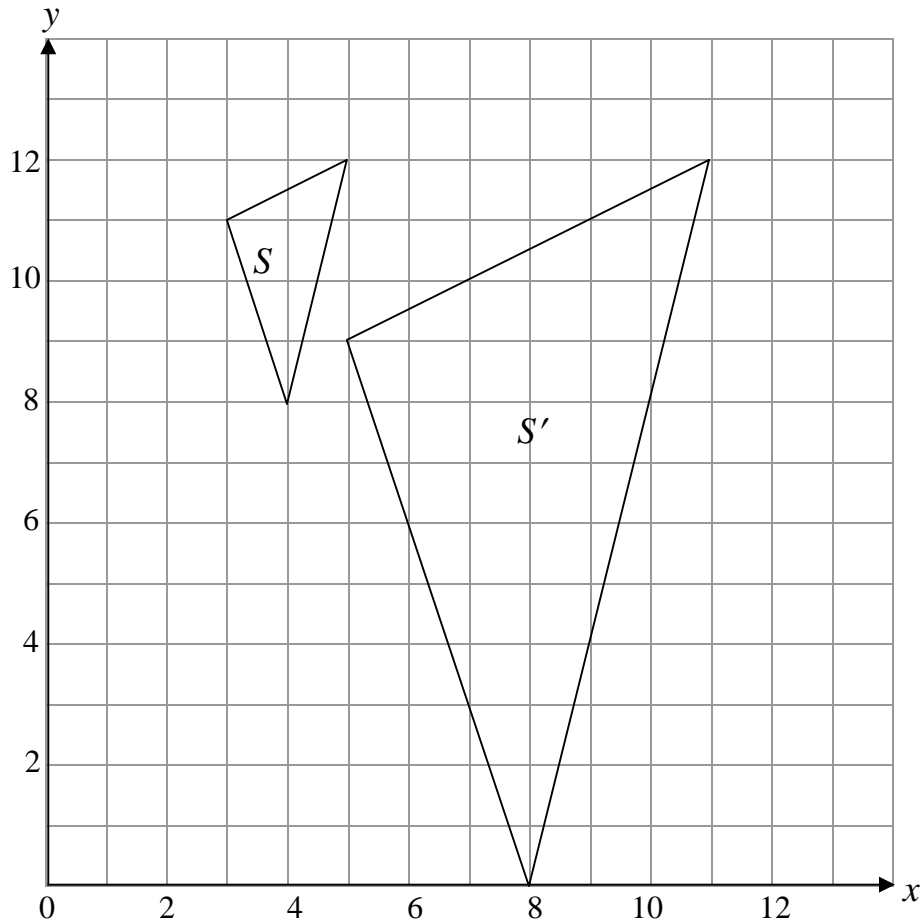


Diagram 3

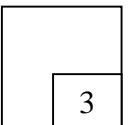
Triangle S' is the image of triangle S under transformation H .

Describe in full transformation H .

[3 marks]

Answer:

11



- 12 Diagram 4 in the answer space shows two quadrilaterals, $EFGH$ and $E'F'G'H'$, drawn on a grid of equal squares. $E'F'G'H'$ is the image of $EFGH$ under a reflection. On the diagram in the answer space, draw the axis of the reflection.

[2 marks]

Answer:

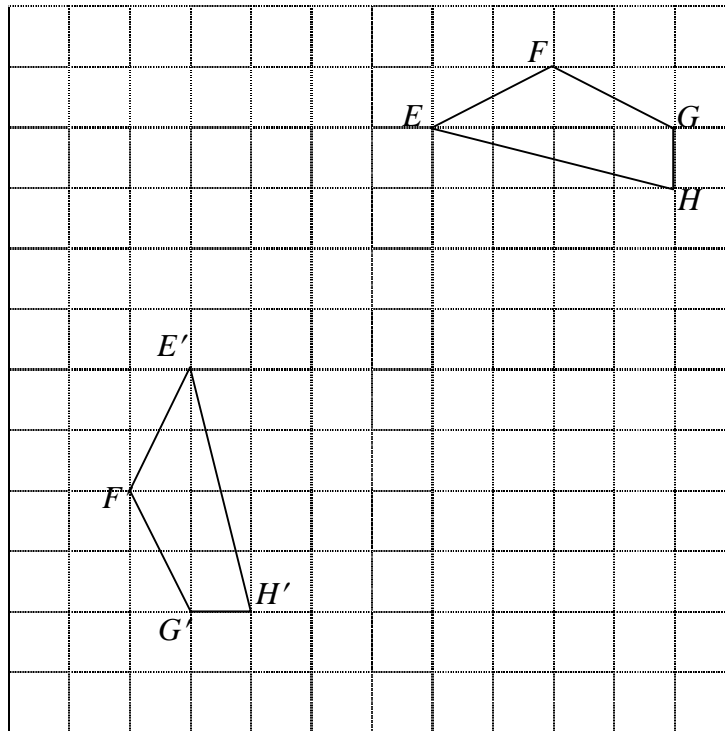
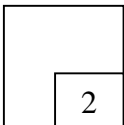


Diagram 4

12



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13. Diagram 5 shows an irregular pentagon.

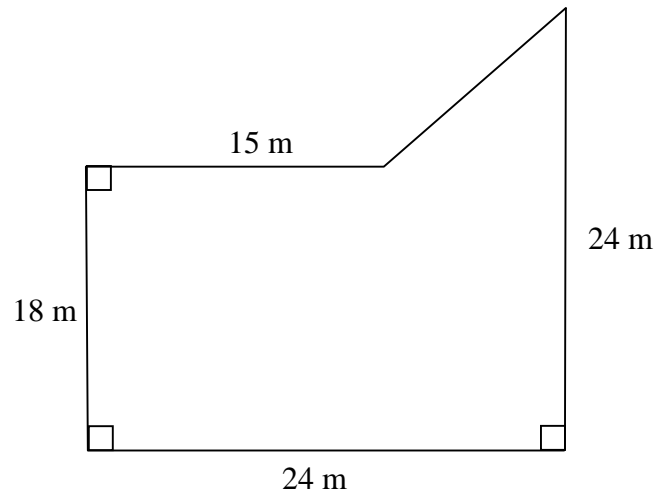
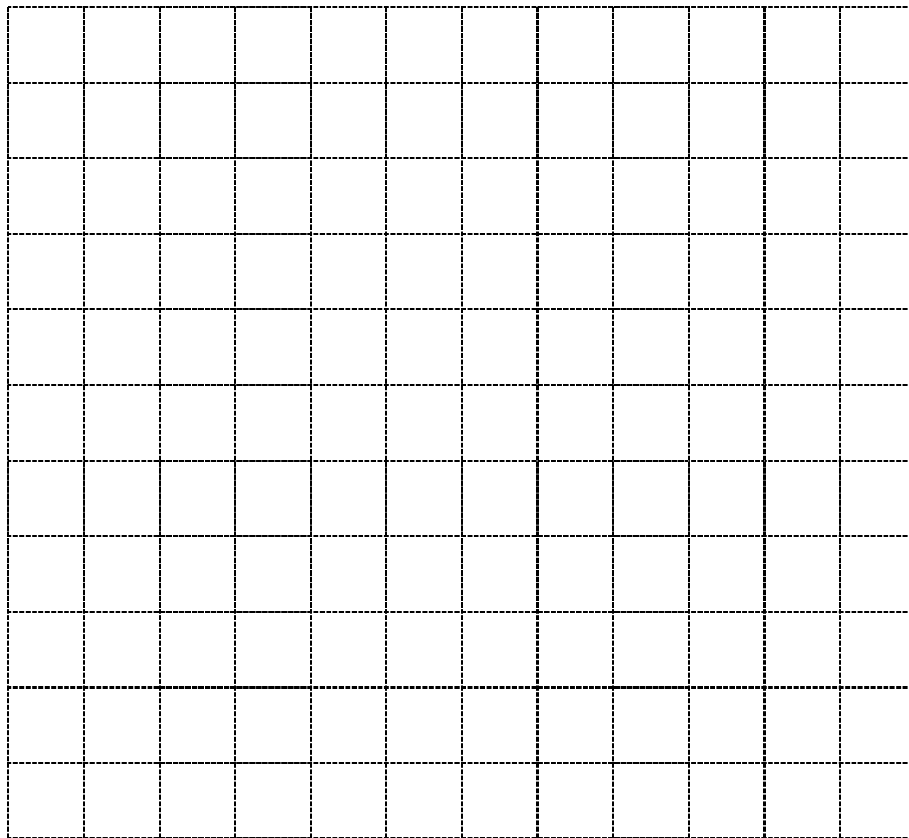


Diagram 5

On the grid in the answer space, draw Diagram 5 using the scale 1 : 300. The grid has equal squares with side of 1 cm.

[2 marks]

Answer:



14. Simplify $(9f^3h^4)^{\frac{1}{2}} \times f^{\frac{1}{2}}h^{-2}$

[3 marks]

Answer:

14

3

15. Given that $2^{1-3m} = 1$.
Calculate the value of m

[2 marks]

Answer:

15

2

16. List all the integer values of x which satisfy the simultaneous linear inequalities
 $x - 6 \leq -2x$ and $-2x < 3$ on the number line provided in the answer space.

[3 marks]

Answer:

16

3

[Lihat sebelah
SULIT

17 Table 1 shows the ambitions of 40 students in a class.

Ambition	Number of students
Doctor	13
Engineer	12
Architech	x
IT Programmer	8

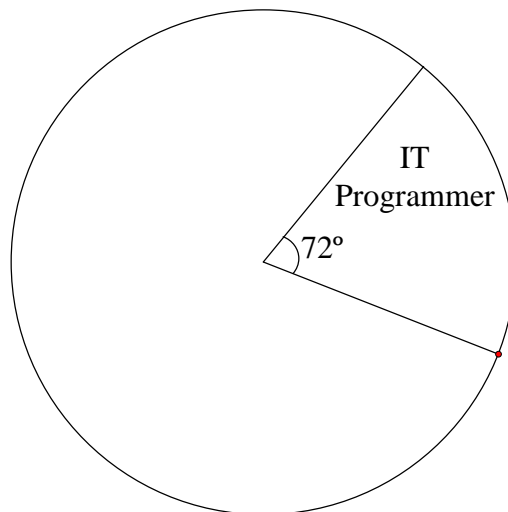
Table 1

- (a) Find the value of x .
- (b) Complete the pie chart provided in the answer space to represent the data given above.

[4 marks]

Answer:

- (a)
- (b)



For
Examiner's
Use

- 18 In Diagram 6, PQR and RST are right-angled triangles. PTR is a straight line. T is the midpoint of PR .

[3 marks]

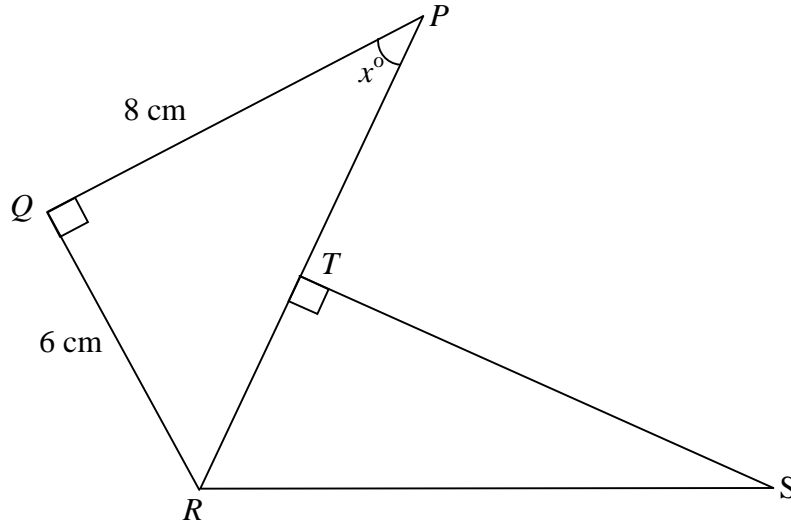


Diagram 6

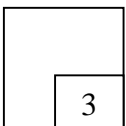
- (a) State the value of $\sin x^\circ$
- (b) Given that $\cos \angle SRT = \frac{1}{3}$, find the length of RS .

Answer:

(a)

(b)

18



[Lihat sebelah
SULIT

- 19 The data below shows a class of students about their favourite local foods.

<i>L</i>	<i>MG</i>	<i>MR</i>	<i>R</i>	<i>L</i>	<i>MG</i>	<i>MR</i>	<i>R</i>	<i>R</i>	<i>L</i>
<i>L</i>	<i>MG</i>	<i>MG</i>	<i>MR</i>	<i>L</i>	<i>MG</i>	<i>L</i>	<i>L</i>	<i>R</i>	<i>R</i>
<i>R</i>	<i>MG</i>	<i>MR</i>	<i>MG</i>	<i>L</i>	<i>L</i>	<i>R</i>	<i>R</i>	<i>R</i>	<i>R</i>

L = LAKSA *MR* = MEE REBUS *R* = ROJAK *MG* = MEE GORENG

[3 marks]

Based on the above data:

- (a) Complete the frequency Table 2.
 (b) State the mode of the data.

Answer :

- (a)

Type of food	Frequency
<i>L</i>	
<i>MR</i>	
<i>MG</i>	
<i>R</i>	

Table 2

- (b)

20 Use the graph paper provided to answer this question.

Table 3 shows the values of two variables, x and y of a function.

x	-3	-2	-1	0	1	2	3
y	29	10	3	2	1	-6	-25

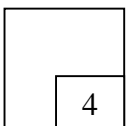
Table 3

By using the scale of 2 cm to 1 unit on the x -axis and 2 cm to 5 units on the y -axis, draw the graph of the function.

[4 marks]

Answer:

20



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