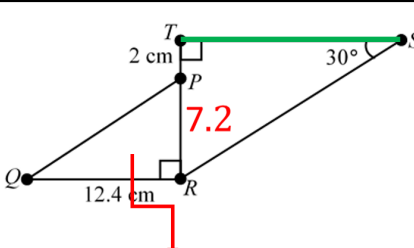


BAHAGIAN A

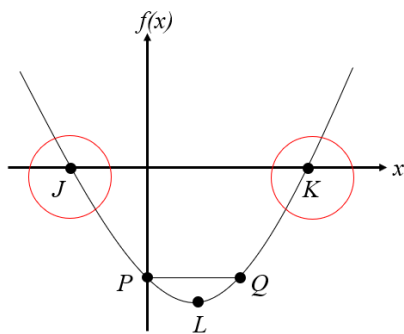
|   |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | $\begin{aligned} 6x + 5y &= 24 \\ 2x + 2y &= 9 \end{aligned}$ $\begin{pmatrix} 6 & 5 \\ 2 & 2 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 24 \\ 9 \end{pmatrix}$ $\begin{pmatrix} x \\ y \end{pmatrix} = \frac{1}{(6)(2) - (5)(2)} \begin{pmatrix} 2 & -5 \\ -2 & 6 \end{pmatrix} \begin{pmatrix} 24 \\ 9 \end{pmatrix}$ <p><math>x = 1.50, y = 3.00</math></p>                                                                |
| 2 | <p>Rajah di bawah menunjukkan graf mudah dan berpemberat. Pemberat dalam graf mewakili jarak dalam kilometer.</p> <p>Diagram below shows a simple graph and weighted. Weight in the graph represents distance in kilometer.</p> <p><math>A - C - D - E - F</math></p> <p><math>1.5 + 4 + 4 + 4.5</math></p> <p>14 kilometer</p> <p>Tentukan laluan dengan jarak terpendek dari bucu A ke bucu F dan seterusnya hitung dalam km jarak terpendek itu.</p> |
| 3 | <p>Jumlah insurans harus dibeli = <math>\frac{75}{100} \times 100000</math></p> <p>= RM 75 000</p> <p>RM 50 000 &lt; RM 75 000</p> <p>Bayaran pampasan = <math>\frac{50000}{75000} \times 15000</math></p> <p>= RM 10 000</p>                                                                                                                                                                                                                           |
| 4 | <p>(a) Hamizan ; R , Hasnah ; P</p> <p>(b) 64 km/j</p>                                                                                                                                                                                                                                                                                                                                                                                                  |
| 5 | <p>(a) R (b) P (c) Q</p>                                                                                                                                                                                                                                                                                                                                                                                                                                |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6  | <div>(a)</div> $n = \frac{12}{4} = 3 \text{ dan } t = 7$ $25000 \left(1 + \frac{0.05}{3}\right)^{3 \times 7}$ $RM \ 35374.50$ <div>1m</div> <div>1m</div> <div>(b)</div> $35374.50 - 25000$ $RM \ 10374.50$ <div>1m</div> <div>1m</div> <div>(c) PALSU</div> <div>1m</div>                                                                                                                                                                                                                                                     |
| 7  | $8 \times 9^1 + 7 \times 9^0$ atau $2 \times 5^2 + 4 \times 5^1 + 4 \times 5^0$ atau setara<br>79 dan 74<br>*79 – *74<br>5 <div>1m</div> <div>1m</div> <div>1m</div> <div>1m</div>                                                                                                                                                                                                                                                                                                                                             |
| 8  | <div>(a)</div> <div>(i) Benar</div> <div>1m</div> <div>(ii) Palsu</div> <div>1m</div> <div>(b)</div> <div> <math display="block">\frac{1}{2}n^2 - \frac{1}{n}</math> <math display="block">n = 1, 2, 3, \dots</math> </div> <div>1m</div> <div>1m</div>                                                                                                                                                                                                                                                                        |
| 9  | <div>(a)</div> <div>35</div> <div>1m</div> <div>(b)</div> <div>90 – 30</div> <div>60</div> <div>1m</div> <div>1m</div> <div>(c)</div> <div> <math display="block">\frac{90}{\left(\frac{150}{60}\right)}</math> <div>36</div> </div> <div>1m</div> <div>1m</div>                                                                                                                                                                                                                                                               |
| 10 | <div>  <div>Cari panjang <i>ST</i>.</div> <div>Find the length of <i>ST</i>.</div> <div>Luas <math>\Delta = \frac{1}{2} \times p \times l</math></div> <div><math>44.64 = \frac{1}{2} \times p \times 12.4</math></div> <div><math>PR = 7.2</math></div> <div> <math display="block">\tan 30^\circ = \frac{9.2}{ST}</math> <math display="block">ST = \frac{9.2}{\tan 30^\circ}</math> <math display="block">ST = 15.9</math> </div> </div> |

BAHAGIAN B

11

(a)(i) Tentukan koordinat titik  $J$  dan titik  $K$ .



$$f(x) = x^2 - 2x - 15$$

$$x^2 - 2x - 15 = 0 \quad \checkmark \quad 1$$

$$(x + 3)(x - 5) = 0 \quad \checkmark \quad 1$$

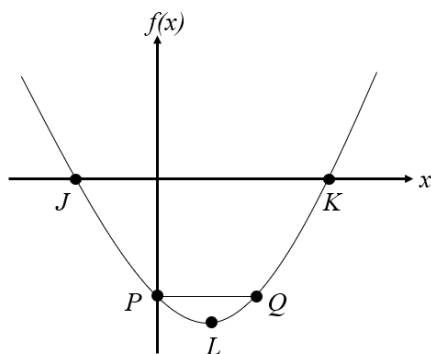
$$x = -3 \quad x = 5$$

$$J = (-3, 0) \quad \checkmark \quad 1 \quad K = (5, 0) \quad \checkmark \quad 1$$

(ii) Nyatakan paksi simetri bagi graf itu.

$$x = \frac{-3 + 5}{2}$$

$$x = 1 \quad \checkmark \quad 1$$



(iii) Nyatakan koordinat titik  $L$ .

$$y = 1^2 - 2(1) - 15 \quad \checkmark \quad 1$$

$$y = -16$$

$$L = (1, -16) \quad \checkmark \quad 1$$

(b) Diberi garis lurus  $PQ$  adalah selari dengan paksi  $-x$ . Tentukan koordinat titik  $Q$ .

$$Q = (2, -15) \quad \checkmark \quad 1$$

12

(a)

| Derma<br>Donation<br>(RM) | Kekerapan<br>Frequency | Titik tengah<br>Midpoint |
|---------------------------|------------------------|--------------------------|
| 1 – 5                     | 0                      | 3                        |
| 6 – 10                    | 3                      | 8                        |
| 11 – 15                   | 8                      | 13                       |
| 16 – 20                   | 19                     | 18                       |
| 21 – 25                   | 8                      | 23                       |
| 26 – 30                   | 2                      | 28                       |
| 31 – 35                   | 0                      | 33                       |

Kekerapan / frequency ( I to VII)

Titik tengah / midpoint ( I to VII)

2m  
1m

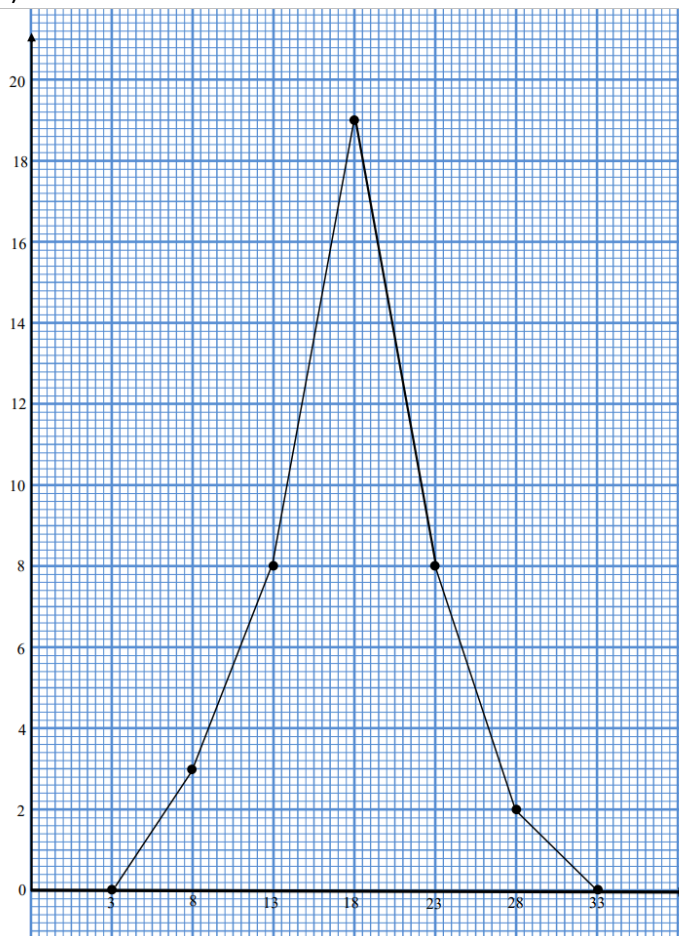
(b) 
$$\frac{(3 \times 0) + (8 \times 3) + (13 \times 8) + (18 \times 19) + (23 \times 8) + (28 \times 2) + (33 \times 0)}{40}$$

2m

$$\frac{710}{40} = 17.75$$

1m

(c)



Paksi dilukis dengan betul – 1m

Semua 7 plot betul – 2m

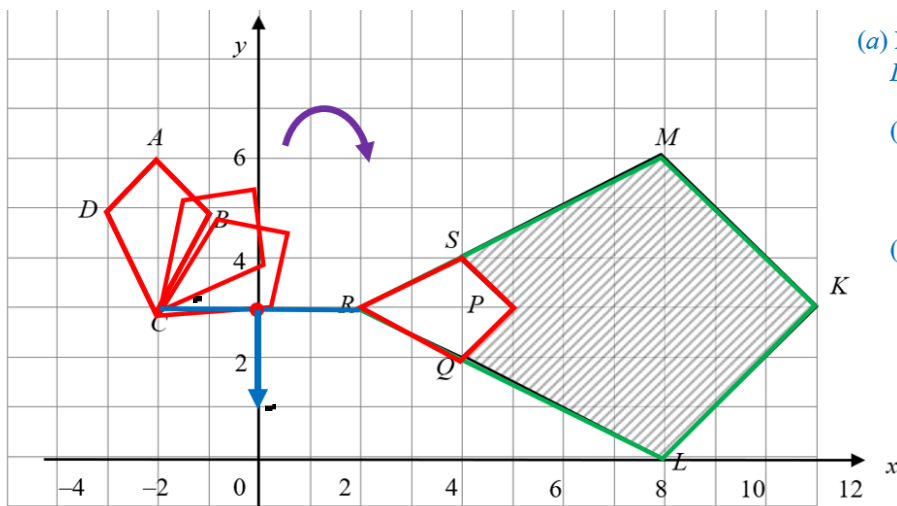
(1 plot salah tolak 1m)

Semua plot disambung dengan betul – 1m

(jika 1 plot tidak diplot dengan betul, maka tiada markah untuk sambungan)

|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|-----|-----|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------|--------|--------|---|---|---|----------------------------|---|--------|--------|--------|---|--------|--------|--------|---|--------|--------|--------|---|--------|--------|--------|---|--------|--------|--------|---|--------|--------|--------|----|
| 13. | (a) | (i)   | <div><div>Kesudahan putaran cakera B</div><div>Outcomes of disc B spinned</div><table><tr><td></td><td>R</td><td>S</td><td>T</td></tr><tr><td rowspan="6">Kesudahan putaran cakera A</td><td>1</td><td>(1, R)</td><td>(1, S)</td><td>(1, T)</td></tr><tr><td>2</td><td>(2, R)</td><td>(2, S)</td><td>(2, T)</td></tr><tr><td>3</td><td>(3, R)</td><td>(3, S)</td><td>(3, T)</td></tr><tr><td>4</td><td>(4, R)</td><td>(4, S)</td><td>(4, T)</td></tr><tr><td>5</td><td>(5, R)</td><td>(5, S)</td><td>(5, T)</td></tr><tr><td>6</td><td>(6, R)</td><td>(6, S)</td><td>(6, T)</td></tr></table></div> |   |        |        |        | R | S | T | Kesudahan putaran cakera A | 1 | (1, R) | (1, S) | (1, T) | 2 | (2, R) | (2, S) | (2, T) | 3 | (3, R) | (3, S) | (3, T) | 4 | (4, R) | (4, S) | (4, T) | 5 | (5, R) | (5, S) | (5, T) | 6 | (6, R) | (6, S) | (6, T) | 2m |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | R | S      | T      |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       | Kesudahan putaran cakera A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1 | (1, R) | (1, S) | (1, T) |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2 | (2, R) | (2, S) | (2, T) |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 3 | (3, R) | (3, S) | (3, T) |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 4 | (4, R) | (4, S) | (4, T) |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 5 | (5, R) | (5, S) | (5, T) |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 6 | (6, R) | (6, S) | (6, T) |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |   |        |        |        |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     | (ii)  | {(1,R), (2,R),(3,R),(4,R),(5,R),(6,R)}                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |        |        | 1m     |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       | $\frac{1}{3}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |        |        | 1m     |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     | (iii) | {(1,R), (3,R),(5,R),(1,S),(3,S),(5,S), (1,T),(3,T),(5,T),(2,S),(4,S), (6,S)}                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |   |        |        | 1m     |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       | $\frac{2}{3}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |   |        |        | 1m     |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     | (b) | (i)   | $\frac{6}{9} \times \frac{5}{8}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |   |        |        | 1m     |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |
|     |     |       | $\frac{5}{12}$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |   |        |        | 1m     |   |   |   |                            |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |   |        |        |        |    |

|    |     |                                                                                                                                                                                                                                                                                                                         |    |
|----|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 14 | (a) | $T = 4500 - 200 = 4300$<br>$U = 1000 + 550 + 600 = 2150$<br>$V = 4300 - 2250 - 2150 = -100$                                                                                                                                                                                                                             | 1m |
|    | (b) | <u>Aliran Tunai = Pendapatan Lebihan = - 100</u><br><u>= Aliran Negatif sebanyak RM100</u><br><br><u>Tidak Cepak</u><br><br><u>Justifikasi: Perbelanjaan melebihi baki pendapatan</u>                                                                                                                                   | 1m |
|    | (c) | <u>Simpanan bulanan:</u><br>$= \frac{30000}{3 \times 12} = RM\ 1\ 000$<br><br><u>Cadangan penambahbaikan:</u><br>1) <u>Kurangkan perbelanjaan tidak tetap seperti kurangkan bil utiliti atau kurangkan simpanan melancong.</u><br>2) <u>Tambah sumber pendapatan melalui kerja lebih masa atau pekerjaan sampingan.</u> | 1m |
|    |     |                                                                                                                                                                                                                                                                                                                         | 1m |
| 15 | (a) | $A' = (4,6) \dots\dots\dots 1m$                                                                                                                                                                                                                                                                                         |    |



(a) Huraikan selengkapnya  
Describe in full

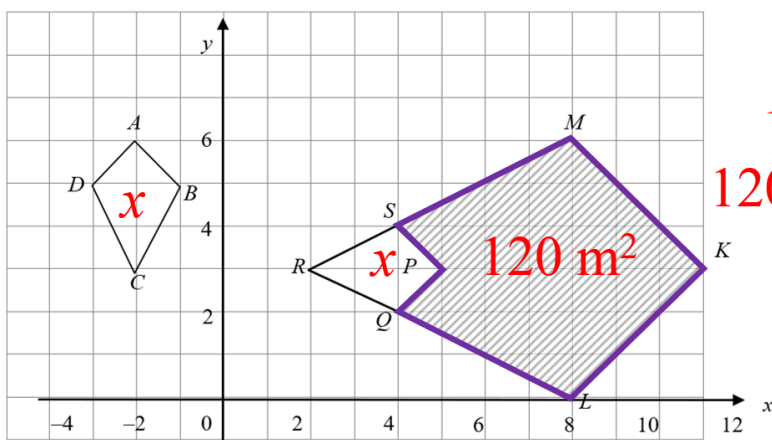
(i) Penjelmaan S  
The transformation S

(ii) Penjelmaan R  
The transformation R

Putaran,  $90^\circ$  ikut arah jam, centre  $(0, 1)$  ✓ 3m

Pembesaran,  $k = 3$ , pusat R ✓ 3m

(c)



$$Li = k^2 \times Lo$$

$$120 + x = 3^2 \times x \quad \checkmark_2$$

$$x = 15 \quad \checkmark_1$$

16

(a) N

(a)  $(y + 1)(y - 3)$

$$= y(y - 3) + 1(y - 3)$$

$$= y^2 - 3y + y - 3$$

$$= y^2 - 2y - 3$$

(b)  $(4 + 3r)(2 + r)$

$$= 8 + 4r + 6r + 3r^2$$

$$= 8 + 10r + 3r^2$$

$$= 3r^2 + 10r + 8$$

(b)

Data di bawah menunjukkan markah ujian Matematik bagi kelas 4A dan 4B.

| 4A |    |    |    |    |
|----|----|----|----|----|
| 40 | 61 | 21 | 55 | 52 |
| 28 | 38 | 33 | 47 | 59 |
| 20 | 27 | 25 | 34 | 44 |
| 20 | 31 | 62 | 50 | 20 |
| 24 | 30 | 32 | 30 | 23 |

| 4B |    |    |    |    |
|----|----|----|----|----|
| 54 | 51 | 32 | 24 | 35 |
| 58 | 39 | 45 | 27 | 69 |
| 59 | 68 | 33 | 30 | 66 |
| 60 | 65 | 27 | 50 | 54 |
| 62 | 57 | 31 | 48 | 40 |

(a) Berdasarkan data itu ,

(i) lengkapkan plot batang-dan-daun

| 4 A                                                                             |   |   |   |   |   |   |   |   |   | 4 B |   |   |   |   |   |   |  |  |
|---------------------------------------------------------------------------------|---|---|---|---|---|---|---|---|---|-----|---|---|---|---|---|---|--|--|
| 8                                                                               | 7 | 5 | 4 | 3 | 1 | 0 | 0 | 0 | 2 | 4   | 7 | 7 |   |   |   |   |  |  |
|                                                                                 |   | 8 | 4 | 3 | 2 | 1 | 0 | 0 | 3 | 0   | 1 | 2 | 3 | 5 | 9 |   |  |  |
|                                                                                 |   |   |   |   |   | 7 | 4 | 0 | 4 | 0   | 5 | 8 |   |   |   |   |  |  |
|                                                                                 |   |   |   |   | 9 | 5 | 2 | 0 | 5 | 0   | 1 | 4 | 4 | 7 | 8 | 9 |  |  |
|                                                                                 |   |   |   |   |   | 2 | 1 |   | 6 | 0   | 2 | 5 | 6 | 8 | 9 |   |  |  |
| Kekunci 0 2   4 bermaksud 20 bagi kelas 4 Averrose dan 24 bagi kelas 4 Avicenna |   |   |   |   |   |   |   |   |   |     |   |   |   |   |   |   |  |  |

✓ 2

(ii) Kelas manakah yang mempunyai serakan yang lebih besar?

4B ✓ 1

(b) Suatu set data yang terdiri daripada sepuluh nombor mempunyai nilai  $\Sigma x = 88$  dan  $\Sigma x^2 = 2496$ . Jika suatu nombor  $k$  dikeluarkan daripada set data itu dan didapati bahawa min berkurang sebanyak 1.2

(i) Hitung nilai  $k$ .

$$\text{Min} = \frac{88}{10}$$

$$\text{Min} = 8.8$$

$$\text{Min Baru} = 8.8 - 1.2$$

$$\text{Min Baru} = 7.6 \quad \checkmark 1$$

$$7.6 = \frac{88 - k}{9} \quad \checkmark 1$$

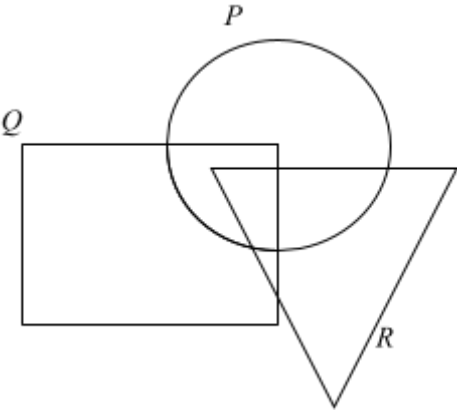
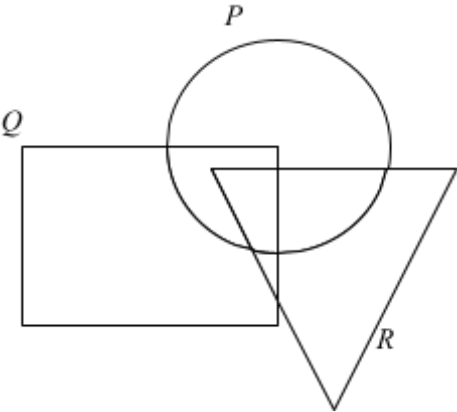
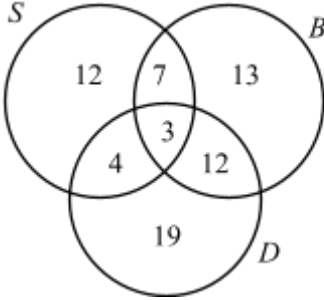
$$k = 19.6 \quad \checkmark 1$$

|     |      |                                                                                    |              |
|-----|------|------------------------------------------------------------------------------------|--------------|
| (c) | (i)  | 150 200 – 50 250<br>99 950                                                         | 1m<br>1m     |
|     | (ii) | $4\,600 + \frac{21}{100} \times (99\,950 - 70\,000) - \text{RM } 3500$<br>7 389.50 | 2m<br><br>1m |

17

|     |                                                |       |                                                       |
|-----|------------------------------------------------|-------|-------------------------------------------------------|
| (i) | $q + 6 = 5$<br>$q + 6 - 6 = 5 - 6$<br>$q = -1$ | (iii) | $5q = 20$<br>$\frac{5q}{5} = \frac{20}{5}$<br>$q = 4$ |
|-----|------------------------------------------------|-------|-------------------------------------------------------|

|                                          |                                                  |      |                                                                         |
|------------------------------------------|--------------------------------------------------|------|-------------------------------------------------------------------------|
| (ii)                                     | $q - 2 = 11$<br>$q - 2 + 2 = 11 + 2$<br>$q = 13$ | (iv) | $\frac{q}{4} = -8$<br>$\frac{q}{4} \times 4 = -8 \times 4$<br>$q = -32$ |
| (a) (jawapan akhir sahaja juga diterima) |                                                  |      |                                                                         |

|     |       |                                                                                     |    |
|-----|-------|-------------------------------------------------------------------------------------|----|
| (b) | (i)   |    | 1m |
|     | (ii)  |   | 2m |
|     | (iii) |  | 3m |
| (c) | (i)   | Pantulan pada garis BF                                                              | 2m |
|     | (ii)  | Putaran 90° pada pusat H, ikut arah jam                                             | 3m |
|     |       | *Terima Pantulan pada garis HD tetapi 2m sahaja                                     |    |