Penyelesaian Lengkap

PRAKTIS 5

Kertas 1

1 Dua rajah adalah kongruen jika saiz dan bentuk adalah sama. Panjang setiap sisi sepadan dan sudut sepadan juga adalah sama.
Two figures are congruent if they are the same size and shape. The length of each corresponding side and the corresponding angle are also equal.
Jawapan/*Answer*: **C**

2 Diberi dua sisi sepadan dan satu sudut sepadan tercangkum antara dua sisi itu. Maka sifat kekongruenan segi tiga ialah Sisi-Sudut-Sisi (SAS).
Given two corresponding sides and one corresponding subtended angle between the two sides. Therefore, the triangle congruence rule is Side-Angle-Side (SAS).
Jawapan/*Answer*: **B**

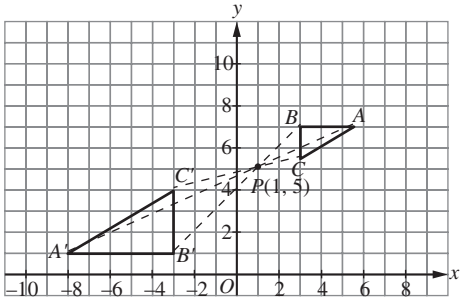
3 Tanpa IV, segi tiga *ABC dan PQR mungkin segi tiga berambiguiti yang tidak kongruen.*
Without IV, triangles ABC and PQR may be ambiguous triangles that are not congruent.
Jawapan/*Answer*: **D**

4 $x = 75°,\ y = 360° - (80° + 75° + 88°)$
$= 117°$
$y - x = 117° - 75°$
$= 42°$
Jawapan/*Answer*: **A**

5 $k = \dfrac{BC}{AC}$
$= \dfrac{4}{8}$
$= \dfrac{1}{2}$
Jawapan/*Answer*: **C**

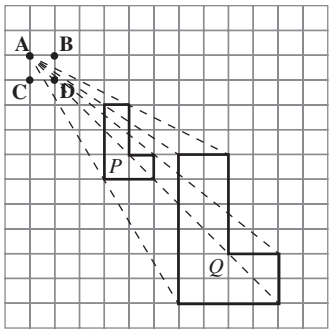
6 $k^2 = \dfrac{A_N}{A_M}$ $\qquad A_N = k^2 \times A_M$
$= 2^2 \times 18$
$= 72$
Luas kawasan berlorek/*Area of shaded region*
$= 72 - 18$
$= 54\ \text{cm}^2$
Jawapan/*Answer*: **B**

7



$k = \dfrac{A'B'}{AB}$
$= -\dfrac{5}{2.5}$
$= -2$
Jawapan/*Answer*: **C**

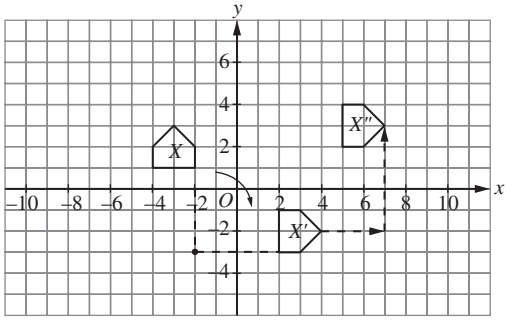
8



Jawapan/*Answer*: **A**

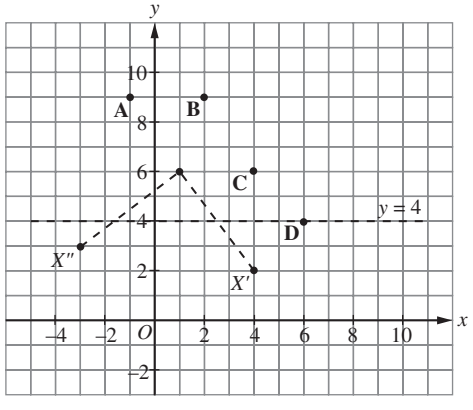
9 $A(2, -1) \xrightarrow{\mathbf{W}\begin{pmatrix}3\\4\end{pmatrix}} A'(2 + 3, -1 + 4) = A'(5, 3)$
$\xrightarrow{\mathbf{V}} A''(5, -1)$
Jawapan/*Answer*: **B**

10



Jawapan/*Answer*: **C**

11



$$X \xrightarrow{\mathbf{P}} X' \xrightarrow{\mathbf{Q}} X''$$

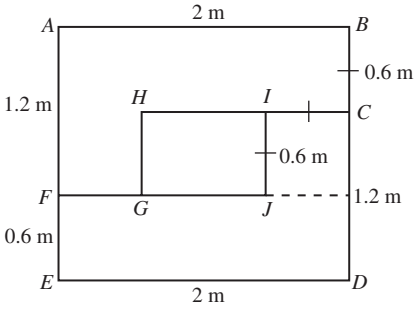
Untuk mendapatkan objek *X,* lakukan transformasi putaran 90° lawan arah jam pada pusat (1, 6) diikuti dengan pantulan pada garis $y = 4$.
To obtain object X, carry out the transformation of anti-clockwise rotation of 90° *about the centre* (1, 6)*, followed by the reflection in the line* $y = 4$.
Jawapan/*Answer*: **C**

12 Bukan teselasi jika terdapat bentuk yang tidak berulang. Dalam Rajah **B**, mempunyai dodekagon yang tidak berulang.
Not a tessellation if it has a shape which does not recur. In Diagram **B** *has a dodecagon that does not recur.*
Jawapan/*Answer*: **B**

Kertas 2

Bahagian A

1



(a) $FG + HC = 2$ m; $BC + HG = 1.2$ m
Perimeter = (2 + 1.2 + 2 + 1.2) m
= 6.4 m

(b) $GJ = [2 - 2(0.6)]$ m
= 0.8 m
Luas/*Area* = 0.8×0.6 m^2
= 0.48 m^2

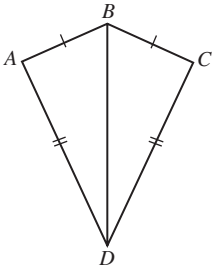
2 (a) $x = \frac{1}{2} \times \left(360° - 40° - \frac{360°}{5}\right)$
= 124°

(b) Luas/*Area* = $5 \times 5 \times \frac{1}{2} \times 5.82 \times 12$
= 873 cm^2

3 (a) Tinggi/*Height* = $\frac{7 \text{ cm}}{2}$
= 3.5 cm

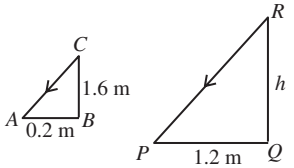
(b) Luas/*Area* = $6 \times \frac{1}{2} \times (6 + 2) \times \frac{7}{2}$
= 84 cm^2

4



$AB = CB$
$AD = CD$
BD ialah sisi sepunya/*BD is a common side.*
Mematuhi syarat Sisi-Sisi-Sisi, maka *ABD* dan *CBD* adalah kongruen.
Satisfy the characteristics of Side-Side-Side, therefore ABD and CBD are congruent.

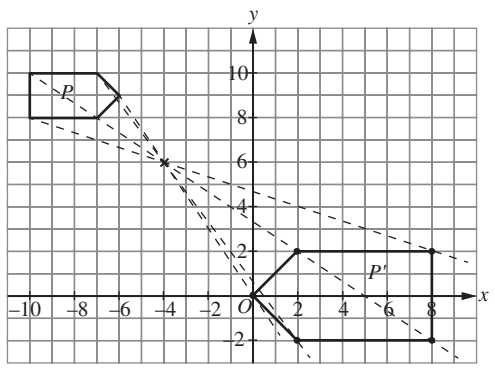
5 (a)



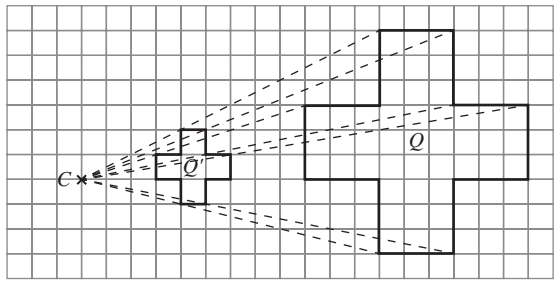
$\angle ABC = \angle PQR = 90°$
$\angle CAB = \angle RPQ$
$\angle ACB = \angle PRQ$
$AB \neq PQ$
Memenuhi sifat Sudut-Sudut-Sudut (*AAA*).
Terbukti segi tiga *ABC* dan *PQR* ialah segi tiga serupa.
Satisfies the characteristics Angle-Angle-Angle (*AAA*).
Proven that ABC and PQR are similar triangles.

(b) $\frac{QR}{BC} = \frac{PQ}{AB}$
$\frac{h}{1.6} = \frac{1.2}{0.2}$
$h = \frac{1.2}{0.2} \times 1.6$
= 9.6 m

6 (a)



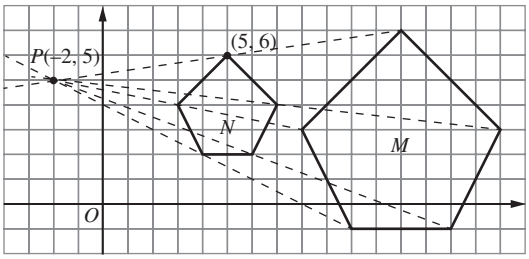
(b)



7 $k^2 = \frac{A_A}{A_B}$
$= \frac{100}{25}$
$= 4$
$k = 2$

Pembesaran pada pusat O dengan faktor skala, $k = 2$.
Enlargement about the centre O with a scale factor, $k = 2$.

8 (a)



(b) $k = \frac{2}{4}$

$= \frac{1}{2}$

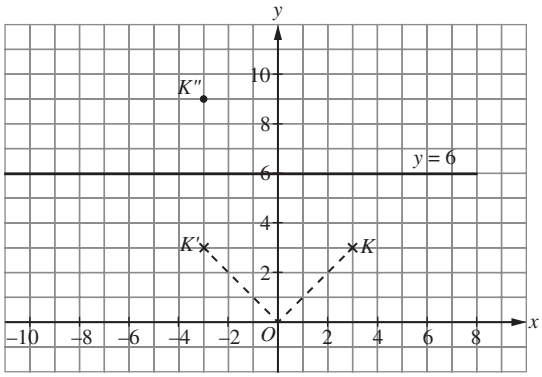
Pembesaran pada pusat $P(-2, 5)$ dengan faktor skala, $k = \frac{1}{2}$.

Enlargement about the centre $P(-2, 5)$ *with a scale factor,* $k = \frac{1}{2}$.

9 (a) $K(3, 3) \xrightarrow{\mathbf{T}\begin{pmatrix} 6 \\ -1 \end{pmatrix}} K'(9, 2)$

(b) $K(3, 3) \xrightarrow{\mathbf{R}} K'(3, 9)$

(c)



$K(3, 3) \xrightarrow{\mathbf{P}} K'(-3, 3) \xrightarrow{\mathbf{R}} K''(-3, 9)$

10 *ABRNPQ* → *EFRBCD:* Putaran 90°ikut arah jam pada pusat *R*.
Clockwise rotation of 90° *about the centre R.*

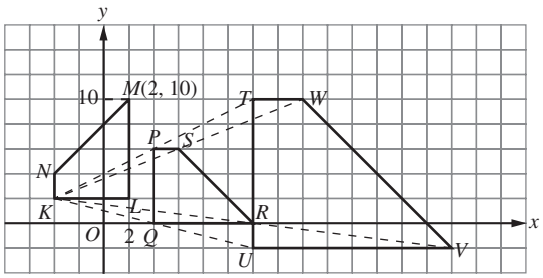
EFRBCD → *MNRJKL*: Pembesaran pada pusat *R* dengan faktor skala, $k = -1$.
Enlargement about the centre R with a scale factor, $k = -1$.

ABRNPQ → *GFRJIH*: Pantulan pada garis *DRL*.
Reflection in the line DRL.

(Mana-mana jawapan yang betul)
(*Any correct answers*)

Bahagian B

11



(a) Skala yang digunakan/*Scale used* = 1 : 2

(b) $TUVW \xrightarrow{\mathbf{A}} PQRS \xrightarrow{\mathbf{B}} KLMN$

$k = \frac{PS}{TW}$

$= \frac{1}{2}$

(i) **A** = Pembesaran pada pusat $K(-4, 2)$ dengan faktor skala, $k = \frac{1}{2}$.

Enlargement about the centre $K(-4, 2)$ *with a scale factor,* $k = \frac{1}{2}$.

(ii) **B** = Putaran 90° lawan arah jam pada pusat (2, 0).
Anticlockwise rotation of 90° *about the centre* (2, 0).

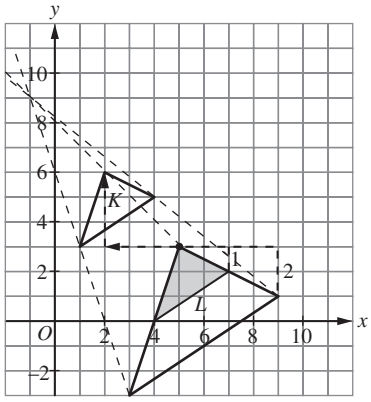
(c) $k^2 = \frac{\text{Luas/}Area\ PQRS}{\text{Luas/}Area\ TUVW}$

$\left(\frac{1}{2}\right)^2 = \frac{15}{\text{Luas/}Area\ TUVW}$

Luas/*Area TUVW* $= 15 \times 4$

$= 60\ \text{cm}^2$

12



$L \xrightarrow{\mathbf{W}} Imej/Image\ 1 \xrightarrow{\mathbf{V}} K$

(a) (i) $k = \frac{1}{2}$

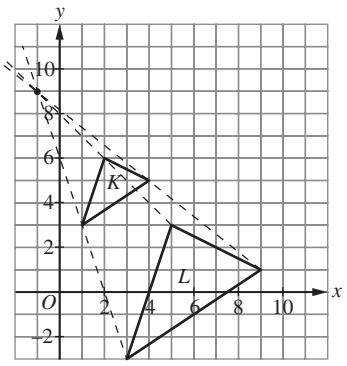
W = Pembesaran pada pusat (5, 3) dengan faktor skala, $k = \frac{1}{2}$.

Enlargement about the centre (5, 3) *with a scale factor,* $k = \frac{1}{2}$.

(ii) **V** = Translasi $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$

Translation $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$

(b)



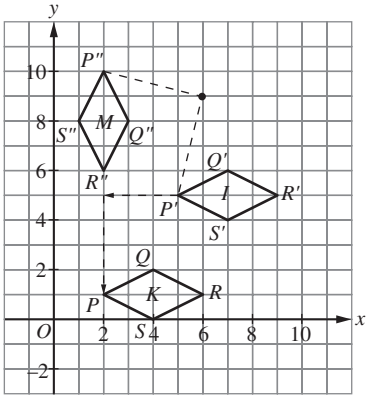
Pembesaran pada pusat (–1, 9) dengan faktor skala, $k = \frac{1}{2}$.

Enlargement about the centre (–1, 9) *with a scale factor,* $k = \frac{1}{2}$.

13 (a) $K \xrightarrow{\mathbf{B}}$ Imej/*Image* 1 $\xrightarrow{\mathbf{A}} M$

$M \rightarrow$ Imej/*Image* 1: Putaran 90° lawan arah jam pada pusat (6, 9)
Anticlockwise rotation of 90° *about the centre* (6, 9)

Imej/*Image* 1 → *K:* Translasi/*Translation* $\begin{pmatrix} -3 \\ -4 \end{pmatrix}$



(b) Kongruen/*Congruent*

(c) $A_N = 4(A_M)$

$\frac{A_N}{A_M} = 4$

$k^2 = 4$

$k = \pm 2$

Bahagian C

14 (a) (i) $x^2 + (x + 2)^2 = (x + 4)^2$

$x^2 + x^2 + 4x + 4 = x^2 + 8x + 16$

$x^2 - 4x - 12 = 0$

$(x - 6)(x + 2) = 0$

$x = 6,\ x = -2$ (ditolak/*rejected*)

$\therefore x = 6$

(ii) $JK = 6$ cm

$IK = 6 + 4$

$= 10$ cm

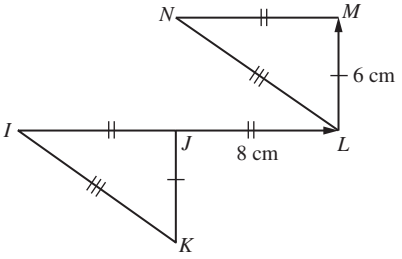
$IJ = 6 + 2$

$= 8$ cm

(b) $GHI \xrightarrow{\mathbf{S}} KJI \xrightarrow{\mathbf{T}} LMN$

(i) **S** = Putaran 180° pada pusat *I*

Rotation of 180° *about the centre I*



(ii) **T** = Translasi $\begin{pmatrix} 8 \\ 6 \end{pmatrix}$

Translation $\begin{pmatrix} 8 \\ 6 \end{pmatrix}$

(c)