Jawapan

Praktis 9

Praktis Formatif

1 $\dfrac{BC}{\sin 50°} = \dfrac{7.2}{\sin 67°}$

$BC = 5.992$ cm

2 $\dfrac{\sin \angle PQR}{11} = \dfrac{\sin 38°}{8}$

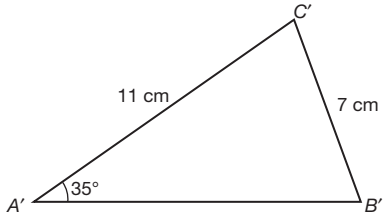
$\angle PQR = 180° - 57.84°$

$= 122.16°$

3 (a) Rajah 3*b*, sisi bertentangan *BC* kepada $\angle ABC$ yang diberi adalah lebih pendek daripada sisi *AC* lain yang diberi.

Diagram 3b, the opposite side BC to the given ∠ABC is shorter than another given side AC.

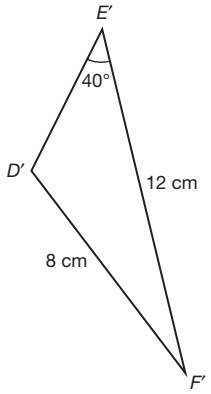
(b)



$\dfrac{\sin \angle A'B'C'}{11} = \dfrac{\sin 35°}{7}$

$\angle A'B'C' = 64.33°$

4 (a)



(b) $\dfrac{\sin \angle EDF}{12} = \dfrac{\sin 35°}{8}$

$\angle EDF = 74.62°$

$\angle E'D'F' = 180° - 74.62°$

$= 105.38°$

5 (a) $\dfrac{\sin \angle PSR}{11} = \dfrac{\sin 70°}{16}$

$\angle PSR = 40.24°$

(b) $\angle PRS = 180° - 26° - 40.24°$

$= 113.76°$

$\dfrac{RS}{\sin 26°} = \dfrac{16}{\sin 113.76°}$

$RS = 7.663$ cm

6 $LM^2 = 5^2 + 8^2 - 2(5)(8) \cos 42°$

$LM = 5.436$ cm

7 $\cos \angle DBA = \dfrac{10^2 + 9^2 - 14^2}{2(10)(9)}$

$\angle DBA = 94.78°$

$\angle DBC = 180° - 94.78°$

$= 85.22°$

8 (a) $\cos \angle HJK = \dfrac{10^2 + 12^2 - 13^2}{2(10)(12)}$

$\angle HJK = 71.79°$

(b) $HK^2 = 10^2 + 6^2 - 2(10)(6) \cos 71.79°$

$HK = 9.925$ cm

9 $x^2 + 5^2 - 2(x)(5) \cos 60° = 7^2$

$x^2 + 25 - 5x = 49$

$x^2 - 5x - 24 = 0$

$(x + 3)(x - 8) = 0$

$x \neq -3, x = 8$

10 (a) $AC^2 = 9^2 + 7^2 - 2(9)(7) \cos 115°$

$AC = 13.54$ cm

(b) $\angle ADC = 180° - 115°$

$= 65°$

$\dfrac{CD}{\sin 45°} = \dfrac{13.54}{\sin 65°}$

$CD = 10.56$ cm

11 $\angle XVW = \dfrac{180° - 110°}{2}$

$= 35°$

$\angle UVW = 180° - 60° - 35°$

$= 85°$

$A_{UVW} = \dfrac{1}{2}(3.6)(5.5) \sin 85°$

$= 9.862$ cm^2

12 $\dfrac{1}{2}(15)(17) \sin \angle ABC = 102$

$\angle ABC = 53.13°$

$\angle ABC = 180° - 53.13°$

$= 126.87°$

13 $\angle EFD = 180° - 72° - 45°$

$= 63°$

$\dfrac{1}{2}(8)(FE) \sin 63° = 38.35$

$FE = 10.76$ cm

14 (a) $\dfrac{\sin \angle TRS}{9} = \dfrac{\sin 96°}{10}$

$\angle TRS = 63.52°$

(b) $\angle TSR = 180° - 96° - 63.52°$
$= 20.48°$

$A_{RST} = \frac{1}{2}(9)(10)(\sin 20.48°)$
$= 15.74 \text{ cm}^2$

15 (a) $\frac{1}{2}(5)(BD)\sin 25° = 7.5$
$BD = 7.099 \text{ cm}$

(b) $\angle BDA = 90° - 25°$
$= 65°$

$\frac{\sin \angle BAD}{7.099} = \frac{\sin 65°}{9}$
$\angle BAD = 45.63°$

16 $s = \frac{8.7 + 6.3 + 7.4}{2}$
$= 11.2$

$A = \sqrt{11.2(11.2 - 8.7)(11.2 - 6.3)(11.2 - 7.4)}$
$= 22.83 \text{ cm}^2$

17 (a) $SU^2 = 7^2 + 4^2 - 2(7)(4) \text{ kos/}cos\ 65°$
$SU = 6.429 \text{ cm}$

(b) $s = \frac{5 + 6 + 6.429}{2}$
$= 8.71$

$A = \sqrt{(8.71)(3.71)(2.71)(2.281)}$
$= 14.18 \text{ cm}^2$

18 (a) $s = \frac{9.5 + 8.5 + 7}{2}$
$= 12.5$

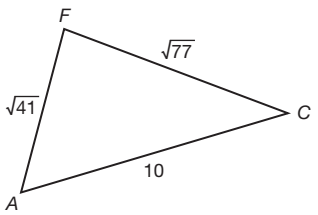
$A = \sqrt{12.5(12.5 - 9.5)(12.5 - 8.5)(12.5 - 7)}$
$= 28.723 \text{ cm}^2$
$= 28.72 \text{ cm}^2$

(b) $A_{XYZ} = \frac{1}{2}(9.5)(8.5) \sin \angle YXZ = 28.723$
$\angle YXZ = 45.35°$
Atau/*Or*

$\text{kos/}cos \angle YXZ = \frac{9.5^2 + 8.5^2 - 7^2}{2(9.5)(8.5)}$
$\angle YXZ = 45.35°$

19 (a) $AC = \sqrt{6^2 + 8^2}$
$= 10 \text{ cm}$

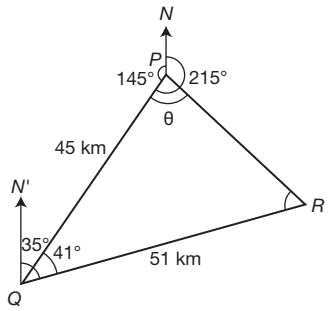
Biar M = jarak serenjang dari titik F ke garis AD
Let M = perpendicular distance from point F to line AD
$AM = 4 \text{ cm}$, $FM = 5 \text{ cm}$
$AF = \sqrt{4^2 + 5^2}$
$= \sqrt{41} \text{ cm}$
$EC = \sqrt{6^2 + 5^2}$
$= \sqrt{61} \text{ cm}$
$CF = \sqrt{(\sqrt{61})^2 + 4^2}$
$= \sqrt{77} \text{ cm}$



$\text{kos/}cos \angle FAC = \frac{10^2 + \left(\sqrt{41}\right)^2 - \left(\sqrt{77}\right)^2}{2(10)(\sqrt{41})}$
$\angle FAC = 60.02°$

(b) $A = \frac{1}{2}(10)\left(\sqrt{41}\right) \sin 60.02°$
$= 27.73 \text{ cm}^2$

20 (a)



Berdasarkan rajah/*Based on the diagram*,
$\angle NPQ = 360° - 215°$
$= 145°$
$\angle N'QP = 180° - 145°$
$= 35°$
$\angle PQR = 76° - 35°$
$= 41°$

(a) $PR^2 = 45^2 + 51^2 - 2(45)(51) \text{ kos/}cos\ 41°$
$PR = 34.09 \text{ km}$

(b) $\frac{\sin \angle QPR}{51} = \frac{\sin 41°}{34.09}$
$\angle QPR = 101.04°$

Praktis Sumatif

Kertas 2

1 (a) $s = \frac{3.4 + 4.1 + 5.7}{2}$
$s = 6.6$
$A = \sqrt{6.6(6.6 - 3.4)(6.6 - 4.1)(6.6 - 5.7)}$
$= 6.893 \text{ cm}^2$

(b) $\frac{1}{2}(3.4)(4.1) \sin \angle BCD = 6.893$
$\angle BCD = 180° - 81.48°$
$= 98.51°$

(c) $\angle BAD = 81.48°$
$\frac{\sin \angle ADB}{4.8} = \frac{\sin 81.48°}{5.7}$
$\angle ADB = 56.39°$

(d) $\angle ABD = 180° - 81.48° - 56.39°$
$= 42.13°$
$AD^2 = 4.8^2 + 5.7^2 - 2(4.8)(5.7) \text{ kos/}cos\ 42.13°$
$AD = 3.866 \text{ cm}$

2 (a) $\frac{1}{2}(6)(RT) \sin 62° = 25$
$RT = 9.438 \text{ cm}$

(b) $ST^2 = 6^2 + 9.438^2 - 2(6)(9.438) \text{ kos/}cos\ 62°$
$ST = 8.480 \text{ cm}$

(c) $\frac{\sin \angle PQR}{12} = \frac{\sin 62°}{13}$
$\angle PQR = 54.59°$

$\angle RPQ = 180° - 62° - 54.59°$
$= 63.41°$

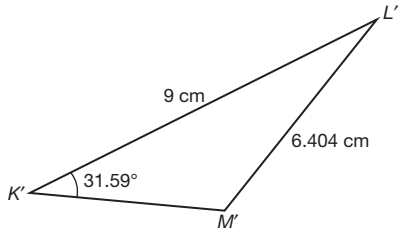
(d) $A_{PQR} = \frac{1}{2}(12)(13)(\sin 63.41°)$
$= 69.75 \text{ cm}^2$
$A_{PQST} = 69.75 - 25$
$= 44.75 \text{ cm}^2$

3 (a) (i) $s = \frac{5 + 6 + 9}{2}$
$s = 10$
$A = \sqrt{10(10 - 5)(10 - 6)(10 - 9)}$
$= 14.142 \text{ cm}^2$

(ii) $\frac{1}{2}(9)(12) \sin \angle LKM = 2 \times 14.142$
$\angle LKM = 31.59°$

(iii) $LM^2 = 9^2 + 12^2 - 2(9)(12) \text{ kos/}cos\ 31.59°$
$LM = 6.404 \text{ cm}$

(b)



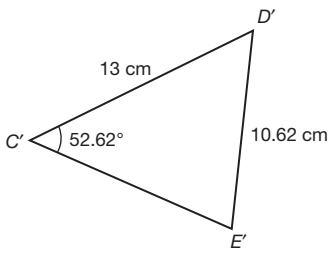
$\frac{\sin K'M'L'}{9} = \frac{\sin 31.59°}{6.404}$
$K'M'L' = 180° - 47.37°$
$= 132.63°$

4 (a) (i) $\text{kos/}cos\ \angle BAC = \frac{8^2 + 10^2 - 7^2}{2(8)(10)}$
$\angle BAC = 44.05°$

(ii) $\frac{\sin \angle ACB}{8} = \frac{\sin 44.05°}{7}$
$\angle ACB = 52.62°$

(iii) $\angle DCE = 52.62°$
$\angle CED = 180° - 24° - 52.62°$
$= 103.38°$
$\frac{DE}{\sin 52.62°} = \frac{13}{\sin 103.38}$
$DE = 10.62 \text{ cm}$

(b) (i)



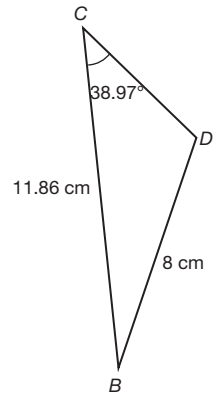
$\angle C'E'D' = 180° - 103.38°$
$= 76.62°$
$\angle C'D'E' = 180° - 52.62° - 76.62°$
$= 50.76°$

(ii) $\text{Luas/}Area, A = \frac{1}{2}(13)(10.62) \sin 50.76°$
$= 53.46 \text{ cm}^2$

5 (a) (i) $BC^2 = 7.5^2 + 10^2 - 2(7.5)(10) \text{ kos/}cos\ 84°$
$BC = 11.86 \text{ cm}$

(ii) $\frac{\sin \angle ABC}{7.5} = \frac{\sin 84°}{11.86}$
$\angle ABC = 38.9°$

(b) (i)



(ii) $\frac{\sin \angle BDC}{11.86} = \frac{\sin 38.97°}{8}$
$\angle BDC = 180° - 68.81°$
$= 111.19°$

(iii) $\angle CBD = 180° - 111.19° - 38.97°$
$= 29.84°$
$A_{BCD} = \frac{1}{2}(8)(11.86) \sin 29.84°$
$= 23.61 \text{ cm}^2$

6 (a) $DB^2 = 9^2 + 16^2 - 2(9)(16) \text{ kos/}cos\ 65°$
$DB = 14.67$
Perimeter $= 9 + 16 + 14.67$
$= 39.67 \text{ m}$

(b) $\frac{\sin \angle ABD}{9} = \frac{\sin 65°}{14.67}$
$\angle ABD = 33.78°$
$\angle DCB = 180° - 33.78° - 40°$
$= 106.22°$
$\frac{DC}{\sin 40°} = \frac{14.67}{\sin 106.22°}$
$DC = 9.821 \text{ m}$
$\angle CDB = 33.78°$
$\text{Luas/}Area = \frac{1}{2}(14.67)(9.821) \sin 33.78°$
$= 40.05 \text{ m}^2$

7 (a) $\frac{\sin \angle RTS}{12} = \frac{\sin 75°}{15}$
$\angle RTS = 50.60°$

(b) $\angle TRS = 180° - 75° - 50.60°$
$= 54.40°$
$A_{RST} = \frac{1}{2}(15)(12) \sin 54.40°$
$= 73.18 \text{ cm}^2$

(c) $\frac{1}{2}(12)(TS) \sin 75° = 73.179$
$TS = 12.63 \text{ cm}$

(d) Biar M = titik tengah bagi QR/*Let M = midpoint of QR*
$TM = \sqrt{15^2 - 5^2}$
$= \sqrt{200}$

$SM = \sqrt{12^2 - 5^2}$

$= \sqrt{119}$

kos/*cos* $\angle TMS = \dfrac{(\sqrt{200})^2 + (\sqrt{119})^2 - 12.63^2}{2(\sqrt{200})(\sqrt{119})}$

$\angle TMS = 58.88°$

8 (a) $SU = \sqrt{12^2 + 16^2}$

$= 20$ cm

$SM = \sqrt{15^2 + 8^2}$

$= 17$ cm

$UM = \sqrt{12^2 + 17^2}$

$= \sqrt{433}$

$s = \dfrac{20 + 17 + \sqrt{433}}{2}$

$= 28.904$

$A = \sqrt{28.904(28.904 - 20)(28.904 - 17)(28.904 - \sqrt{433})}$

$= 157.484$ cm^2

$= 157.5$ cm^2 (4 s.f.)

(b) $\frac{1}{2}(20)(17) \sin \angle USM = 157.484$

$\angle USM = 67.88$

Atau/*Or*

kos/*cos* $\angle USM = \dfrac{20^2 + 17^2 - (\sqrt{433})^2}{2(20)(17)}$

$\angle USM = 67.88°$

(c) Biar UN = jarak serenjang dari U ke SM

Let UN = perpendicular distance from U to SM

$\sin 67.88° = \dfrac{UN}{20}$

$UN = 18.53$ cm

atau/*or*

$\frac{1}{2}(17)(UN) = 157.484$

$UN = 18.53$ cm

(d) $\sin \angle UNR = \dfrac{12}{18.53}$

$\angle UNR = 40.36°$