Exercise 19f

1. $\hat{A} = \sin^{-1}\left(\frac{4.2}{6}\right)$

$= 44.4^\circ$

$\hat{C} = 90^\circ - 44.4^\circ$

$= \underline{45.6^\circ}$

3. $\hat{X} = \cos^{-1}\left(\frac{6.2}{20}\right)$

$= 71.9^\circ$

$\hat{Z} = 90^\circ - 71.9^\circ$

$= \underline{18.1^\circ}$

4) $\frac{x}{11} = \cos 46.2^\circ$

$\frac{x}{11} = 0.6921$

$x = 7.61$

$LM = \underline{7.61 \text{ cm}}$

7) $\frac{x}{16} = \cos 40.2^\circ$

$\frac{x}{16} = 0.7637$

$x = 12.2$

$AB = \underline{12.2 \text{ cm}}$

11) $\hat{A} = \cos^{-1}\left(\frac{7}{10}\right)$

$= 45.57$

$= \underline{45.6^\circ}$

13) $\frac{x}{6} = \tan 18^\circ$

$\frac{x}{6} = 0.324$

$x = 1.95$

$BC = 1.95 \text{ cm}$

$\hat{C} = 90^\circ - 18^\circ = 72^\circ$

15) $\hat{A} = \tan^{-1}\left(\frac{9}{7}\right)$

$= 52.1^\circ$

$\hat{C} = 90^\circ - 52.1^\circ$

$= \underline{37.9^\circ}$

17) $\hat{C} = \cos^{-1}\left(\frac{2.42}{4}\right)$

$= 52.8^\circ$

20) $\frac{(AB)}{20} = \cos 32^\circ$

$AB = 16.96$

$AB = 17.0 \text{ cm}$

$\frac{BC}{20} = \sin 32^\circ$

$BC = 10.598$

$BC = \underline{10.6 \text{ cm}}$

Problems - Exercise 19 g -

1. $\hat{CAB} = \sin^{-1}\left(\frac{3}{4}\right)$

$= 48.6^\circ$

2) $\frac{x}{10} = \sin 31^\circ$

$\frac{x}{10} = 0.5150$

$x = 5.15$

$DC = 5.15$ cm

4) $\hat{A} = \sin^{-1}\left(\frac{1.6}{2}\right)$

$= 53.1^\circ$

6) $\frac{x}{8} = \sin 68.6^\circ$

$\frac{x}{8} = 0.9310$

$x = 7.45$

Height of the triangle = 7.45 cm

7) $\hat{CAB} = \cos^{-1}\left(\frac{4.2}{6.3}\right)$

$= 48.2^\circ$

Acute angle $= 180^\circ - (48.2 \times 2)$

$= 83.6^\circ$

8) $\hat{A} = \cos^{-1}\left(\frac{5}{12}\right)$

$= 65.4^\circ$

$\hat{B} = \hat{A}$ (Isosceles triangle)

$\hat{B} = 65.4^\circ$

$\hat{C} = 180^\circ - (65.4^\circ \times 2)$

$= 49.2^\circ$

9) $\sin \hat{A} = \frac{1}{8}$

$\hat{A} = \sin^{-1}\left(\frac{1}{8}\right)$

Angle of slope $= 7.2^\circ$

11) $10\% = \frac{10}{100} = \frac{1}{10}$

$\sin \hat{A} = \frac{1}{10}$

$\hat{A} = \sin^{-1}\left(\frac{1}{10}\right)$

Angle of slope $= 5.7^\circ$

Exercise 19h

1. Find $\sin \hat{A}$

a) $\hat{A} = 40^\circ$

$\sin 40^\circ = 0.642787609$

$= 0.643$

b) Find $\cos \hat{B}$

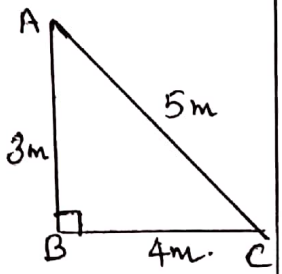
$\hat{B} = 50^\circ$

$\cos 50^\circ = 0.642787609$

$= 0.643$

$\sin 40^\circ = \cos 50^\circ$

2)



a) $\sin \hat{A} = \frac{opp}{hyp} = \frac{4}{5}$

$\hat{A} = \sin^{-1}\left(\frac{4}{5}\right)$

$\hat{A} = 53.1^\circ$

$\sin 53.1^\circ = 0.800$

b) $\cos \hat{C} = \frac{adj}{hyp} = \frac{4}{5}$

$\hat{C} = \cos^{-1}\left(\frac{4}{5}\right)$

$= 36.9^\circ$

$\cos 36.9^\circ = 0.800$

$\hat{A} + \hat{C} = 53.1^\circ + 36.9^\circ$

$= 90^\circ$.

3)

$\sin \hat{A} = 0.3$

$\hat{A} = \sin^{-1}(0.3)$

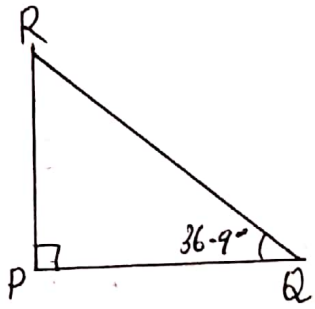
$\hat{A} = 17.5^\circ$

$\hat{C} = 90^\circ - 17.5^\circ = 72.5^\circ$

$\cos 72.5^\circ = 0.30070$

$= 0.301$.

4)



$\cos \hat{Q} = 0.8$

$\hat{Q} = \cos^{-1}(0.8)$

$= 36.9^\circ$

$\hat{R} = 90^\circ - 36.9^\circ$

$= 53.1^\circ$

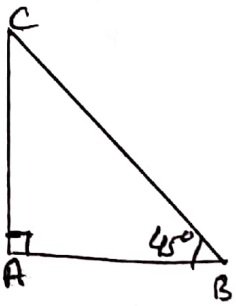
$\sin 53.1^\circ = 0.79968$

$= 0.800$

5)

a) $\hat{C} = 90^\circ - 45^\circ$

$= 45^\circ$



b) Isosceles triangle

c) $\tan 45^\circ = 1$