Math 10

Lesson 7-2 Answers

Lesson Questions

Question 1

XY is the opposite side and YZ is the adjacent side, therefore we use the tan function.

$$\tan 70 = \frac{XY}{YZ}$$
$$YZ \tan 70 = XY$$
$$5.0 \tan 70 = XY$$
$$\mathbf{13.7cm} = XY$$

Question 2

WX is the opposite side and VX is the adjacent side, therefore we use the tan function.

$$\tan 42 = \frac{WX}{VX}$$
$$VX \tan 42 = WX$$
$$VX = \frac{WX}{\tan 42}$$
$$VX = \frac{7.2}{\tan 42}$$
$$VX = \mathbf{8.0\,cm}$$

Question 3

$$\tan 8 = \frac{\text{tower}}{200}$$
$$200 \tan 8 = \text{tower}$$
$$\mathbf{28.1m} = \text{tower}$$

Question 4

PR is the hypotenuse and PQ is the opposite side, therefore we use the sine function.

$$\sin = \frac{\text{opp}}{\text{hyp}}$$
$$\sin 67 = \frac{PQ}{10.4}$$
$$10.4 \sin 67 = PQ$$
$$\mathbf{9.6\,cm} = PQ$$

Question 5

JK is the hypotenuse and MJ is opposite the angle, therefore we use the sine function.

$$\sin = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 65 = \frac{7.6}{\text{JK}}$$

$$\text{JK} = \frac{7.6}{\sin 65}$$

$$\text{JK} = \mathbf{8.4\,cm}$$

Question 6

The horizontal distance is adjacent to the angle and we are trying to find the hypotenuse, therefore we use the cosine function.

$$\cos = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 32.5 = \frac{35.6}{\text{hyp}}$$

$$\text{hyp} = \frac{35.6}{\cos 32.5}$$

$$\text{hyp} = \mathbf{42.2\,km}$$

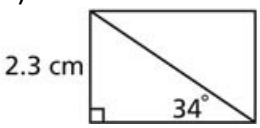
Assignment

1. a) 2.2 cm b) 2.8 cm c) 2.8 cm

2. a) 5.6 cm b) 4.1 cm c) 3.8 cm

3. 3.8 m

4. a)



b) 3.4 cm

5. 40.3 cm^2

6. ∠QRT = ∠SRT = 26.5°, ∠QRS = 53.0°,
∠QPT = ∠SPT = 56.3°, ∠QPS = 112.6°,
∠RQT = ∠RST = 63.5°,
∠PQT = ∠PST = 33.7°,
∠PQR = ∠PSR = 97.2°,
∠PTQ = ∠PTS = ∠QTR = ∠RTS = 90.0°
PQ = PS =˙ 3.6 cm, QR = SR =˙ 6.7 cm

7. a) Approximately 38.7°
   b) Approximately 63.4°

8. a) 25.3 cm b) 8.0 cm c) 7.7 cm d) 12.4 cm

9. 29.7 m

10. a) 48.3 m
    b) The surveyor could use the tangent ratio or the Pythagorean Theorem.

11. 4.0 km

12. 2813 m

13. a) i) 21.0 cm ii) 15.1 cm

14. 186 mm