

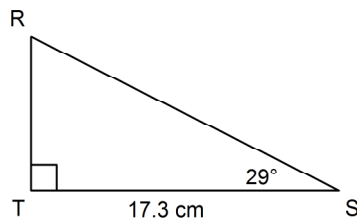
**Math 10 - Unit 2 - Trigonometry - REVIEW WORKSHEET****Multiple Choice**

Identify the choice that best answers the question.

1. From the top of a 20-m lookout tower, a fire ranger observes one fire due east of the tower at an angle of depression of  $8^\circ$ . She sees another fire due north of the tower at an angle of depression of  $4^\circ$ . How far apart are the fires to the nearest metre?

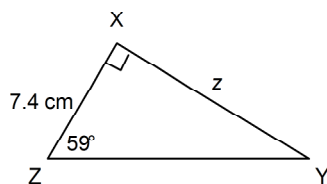
- a. 143 m  
b. 428 m  
c. 286 m  
d. 319 m

2. Determine the area of  $\triangle RST$  to the nearest square centimetre.



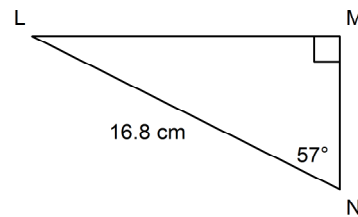
- a.  $171 \text{ cm}^2$   
b.  $270 \text{ cm}^2$   
c.  $83 \text{ cm}^2$   
d.  $166 \text{ cm}^2$

3. Determine the length of side  $z$  to the nearest tenth of a centimetre.



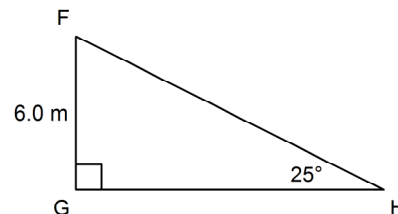
- a. 14.4 cm  
b. 4.4 cm  
c. 8.6 cm  
d. 12.3 cm

4. Determine the length of MN to the nearest tenth of a centimetre.



- a. 25.9 cm  
b. 30.8 cm  
c. 9.1 cm  
d. 14.1 cm

5. Solve this right triangle. Give the measures to the nearest tenth.

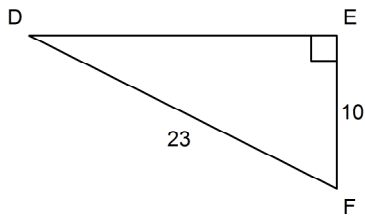


- a.  $\angle F = 65^\circ$ ;  $GH = 2.8 \text{ m}$ ;  $FH = 6.6 \text{ m}$   
b.  $\angle F = 65^\circ$ ;  $GH = 12.9 \text{ m}$ ;  $FH = 6.6 \text{ m}$   
c.  $\angle F = 75^\circ$ ;  $GH = 12.9 \text{ m}$ ;  $FH = 14.2 \text{ m}$   
d.  $\angle F = 65^\circ$ ;  $GH = 12.9 \text{ m}$ ;  $FH = 14.2 \text{ m}$

6. A guy wire is attached to a tower at a point that is 6.4 m above the ground. The angle between the wire and the level ground is  $64^\circ$ . How far from the base of the tower is the wire anchored to the ground, to the nearest tenth of a metre?

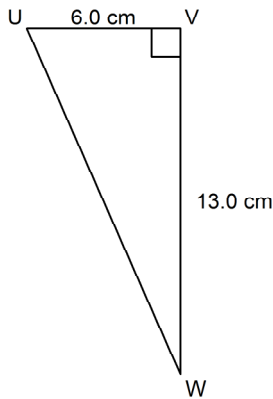
- a. 2.8 m  
b. 7.1 m  
c. 3.1 m  
d. 13.1 m

7. Determine the measure of  $\angle D$  to the nearest tenth of a degree.



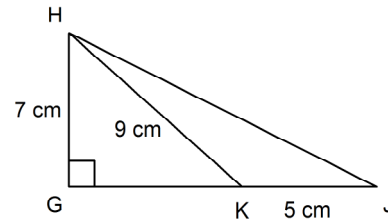
- a.  $64.2^\circ$
- b.  $66.5^\circ$
- c.  $25.8^\circ$
- d.  $23.5^\circ$

8. Solve this right triangle. Give the measures to the nearest tenth.



- a.  $\angle U = 24.8^\circ$ ;  $\angle W = 65.2^\circ$ ;  $UW = 14.3$  cm
- b.  $\angle U = 65.2^\circ$ ;  $\angle W = 24.8^\circ$ ;  $UW = 14.3$  cm
- c.  $\angle U = 65.2^\circ$ ;  $\angle W = 24.8^\circ$ ;  $UW = 31.0$  cm
- d.  $\angle U = 24.8^\circ$ ;  $\angle W = 65.2^\circ$ ;  $UW = 31.0$  cm

9. Calculate the measure of  $\angle GHJ$  to the nearest tenth of a degree.

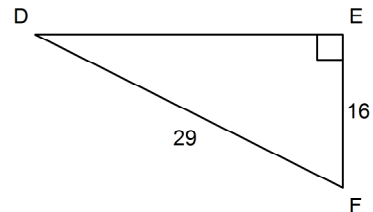


- a.  $72.2^\circ$
- b.  $33.3^\circ$
- c.  $56.7^\circ$
- d.  $66.9^\circ$

10. A ladder is 8.0 m long. It leans against a wall. The angle of inclination of the ladder is  $70^\circ$ . To the nearest tenth of a metre, how far from the wall is the base of the ladder?

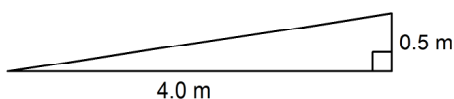
- a. 2.9 m
- b. 7.5 m
- c. 23.4 m
- d. 2.7 m

11. Determine the measure of  $\angle D$  to the nearest tenth of a degree.

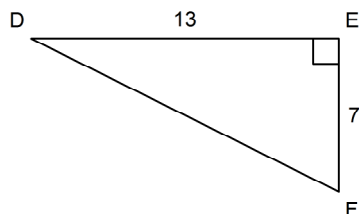


- a.  $56.5^\circ$
- b.  $61.1^\circ$
- c.  $33.5^\circ$
- d.  $28.9^\circ$

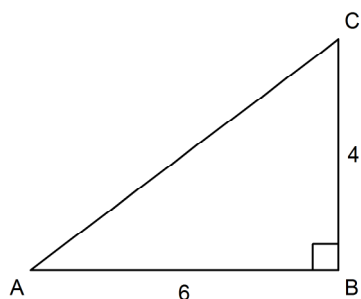
12. An student draws this diagram of a skateboard ramp. Determine the angle of inclination of the ramp to the nearest tenth of a degree.



- $82.9^\circ$
  - $51.3^\circ$
  - $7.1^\circ$
  - $11.3^\circ$
13. Determine the measure of  $\angle D$  to the nearest tenth of a degree.

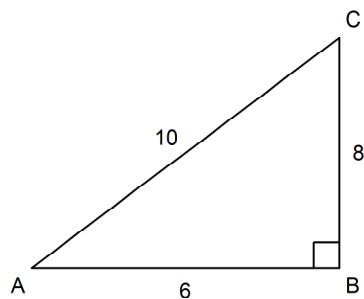


- $28.3^\circ$
  - $32.6^\circ$
  - $57.4^\circ$
  - $61.7^\circ$
14. Determine  $\tan A$  and  $\tan C$ .

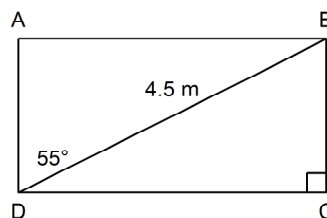


- $\tan A = 1.5$ ;  $\tan C = 0.\overline{6}$
- $\tan A = 0.\overline{6}$ ;  $\tan C = 0.8321\dots$
- $\tan A = 0.\overline{6}$ ;  $\tan C = 1.5$
- $\tan A = 0.5547\dots$ ;  $\tan C = 1.5$

15. Determine  $\sin A$  and  $\cos A$  to the nearest tenth.

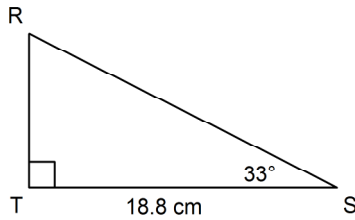


- $\sin A = 1.3$ ;  $\cos A = 0.6$
  - $\sin A = 0.6$ ;  $\cos A = 0.8$
  - $\sin A = 0.8$ ;  $\cos A = 1.7$
  - $\sin A = 0.8$ ;  $\cos A = 0.6$
16. A guy wire is attached to a tower at a point that is 6.1 m above the ground. The angle between the wire and the level ground is  $52^\circ$ . How far from the base of the tower is the wire anchored to the ground, to the nearest tenth of a metre?
- 3.8 m
  - 7.7 m
  - 4.8 m
  - 7.8 m
17. Calculate the length of this rectangle to the nearest tenth of a metre.

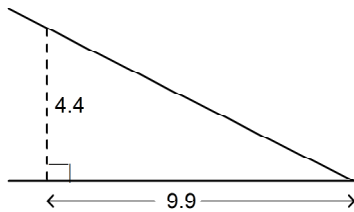


- 5.5 m
- 2.6 m
- 3.7 m
- 3.2 m

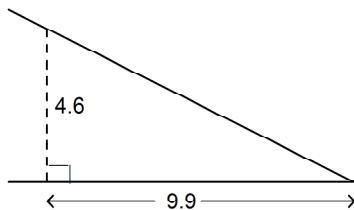
18. Determine the area of  $\triangle RST$  to the nearest square centimetre.



- 211 cm<sup>2</sup>
  - 272 cm<sup>2</sup>
  - 115 cm<sup>2</sup>
  - 230 cm<sup>2</sup>
19. Determine the angle of inclination of the line to the nearest tenth of a degree.

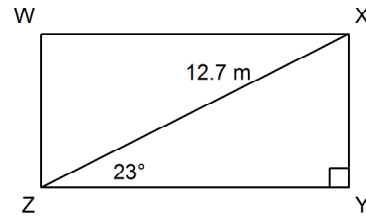


- 63.6°
  - 24.0°
  - 66.0°
  - 26.4°
20. Determine the angle of inclination of the line to the nearest tenth of a degree.

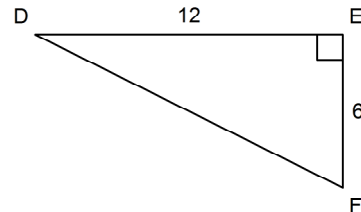


- 62.3°
- 24.9°
- 65.1°
- 27.7°

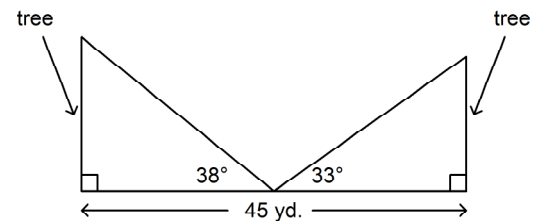
21. Determine the area of this rectangle to the nearest tenth of a square metre.



- 58.0 m<sup>2</sup>
  - 380.0 m<sup>2</sup>
  - 92.6 m<sup>2</sup>
  - 68.5 m<sup>2</sup>
22. Determine the measure of  $\angle D$  to the nearest tenth of a degree.

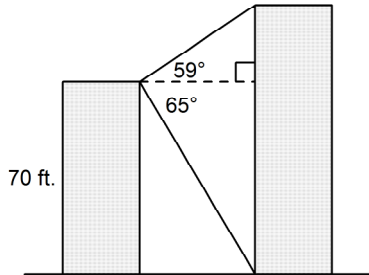


- 26.6°
  - 30.0°
  - 60.0°
  - 63.4°
23. Two trees are 45 yd. apart. From a point halfway between the trees, the angles of elevation of the tops of the trees are measured. What is the height of each tree to the nearest yard?

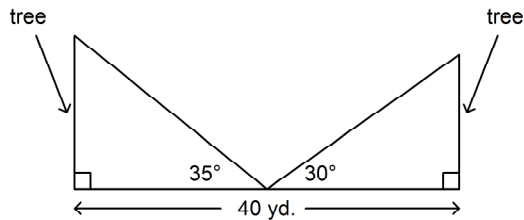


- 29 yd.; 27 yd.
- 18 yd.; 15 yd.
- 29 yd.; 35 yd.
- 28 yd.; 34 yd.

24. From the top of an 70-ft. building, the angle of elevation of the top of a taller building is  $59^\circ$  and the angle of depression of the base of this building is  $65^\circ$ . Determine the height of the taller building to the nearest foot.



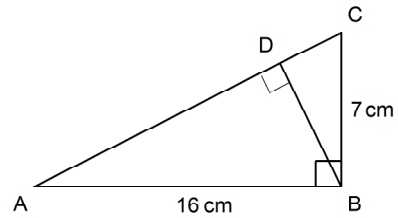
- 170 ft.
  - 108 ft.
  - 134 ft.
  - 356 ft.
25. Two trees are 40 yd. apart. From a point halfway between the trees, the angles of elevation of the tops of the trees are measured. What is the height of each tree to the nearest yard?



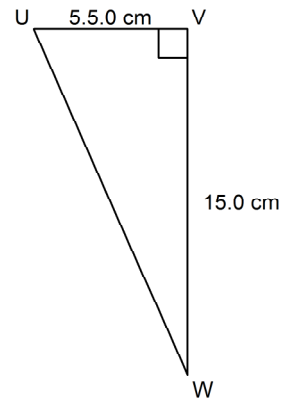
- 24 yd.; 23 yd.
  - 14 yd.; 12 yd.
  - 29 yd.; 35 yd.
  - 28 yd.; 34 yd.
26. At a point 30 ft. from the base of a flag pole, the angle of elevation of the top of the pole is  $53.5^\circ$ . How tall is the flag pole to the nearest foot?

- 50 ft.
- 18 ft.
- 41 ft.
- 22 ft.

27. Determine the measure of  $\angle ABD$  to the nearest tenth of a degree.



- $64.1^\circ$
  - $66.4^\circ$
  - $23.6^\circ$
  - $25.9^\circ$
28. Solve this right triangle. Give the measures to the nearest tenth.

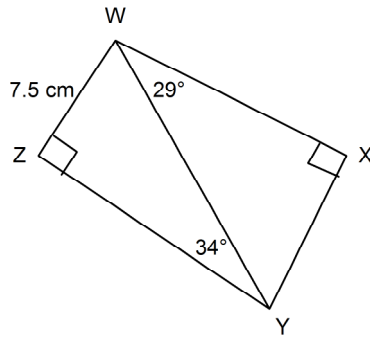


- $\angle U = 20.1^\circ$ ;  $\angle W = 69.9^\circ$ ;  $UW = 16.0$  cm
- $\angle U = 69.9^\circ$ ;  $\angle W = 20.1^\circ$ ;  $UW = 16.0$  cm
- $\angle U = 69.9^\circ$ ;  $\angle W = 20.1^\circ$ ;  $UW = 43.6$  cm
- $\angle U = 20.1^\circ$ ;  $\angle W = 69.9^\circ$ ;  $UW = 43.6$  cm

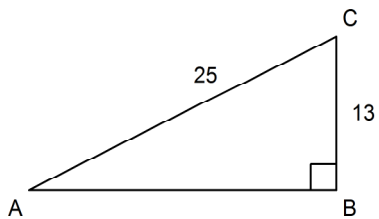
**Short Answer** Clearly show your process of solving each problem and box your final answer.

29.  $\tan B = 1.4$ ; determine the measure of  $\angle B$  to the nearest tenth of a degree.

30. Determine the length of  $WX$  to the nearest tenth of a centimetre.



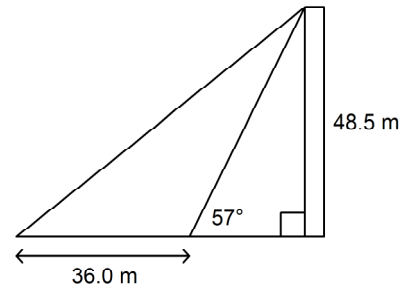
31. Determine the measures of  $\angle A$  and  $\angle C$  to the nearest tenth of a degree.



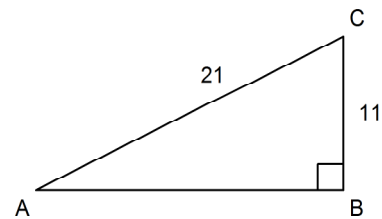
32. From the roof of Yee's building, the angle of elevation of the top of a taller building is  $39^\circ$ . The angle of depression of the base of the building is  $24^\circ$ . The buildings are  $27 \text{ m}$  apart. Determine the height of the taller building to the nearest metre.

33.  $\tan B = 1.7$ ; determine the measure of  $\angle B$  to the nearest tenth of a degree.

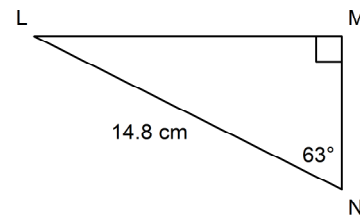
34. Sally measured the angle of elevation of the top of a tower as  $57^\circ$ . The height of the tower is  $48.5 \text{ m}$ . She then walked  $36.0 \text{ m}$  due west from the point where she measured the angle of elevation. Determine the angle of elevation of the tower from her new location to the nearest tenth of a degree.



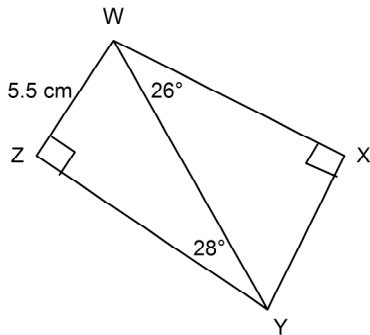
35. Determine the measures of  $\angle A$  and  $\angle C$  to the nearest tenth of a degree.



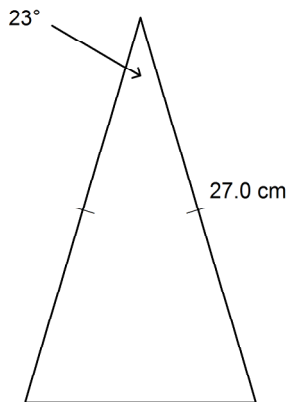
36. Solve this right triangle. Give the measures to the nearest tenth.



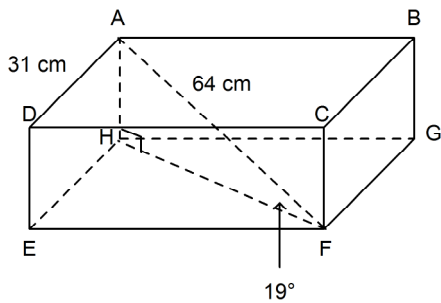
37. Determine the length of WX to the nearest tenth of a centimetre.



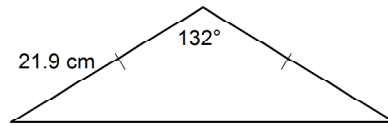
38. Determine the height of this isosceles triangle to the nearest tenth of a centimetre.



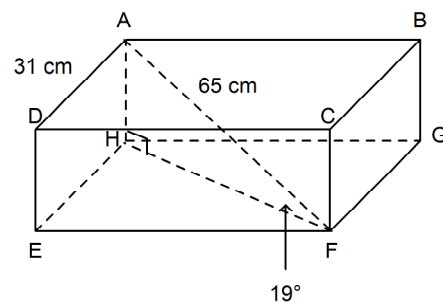
39. The length of the body diagonal in this rectangular prism is 64 cm. The width of the prism is 31 cm. The measure of  $\angle AFH$  is  $19^\circ$ . Determine the height and the length of the rectangular prism to the nearest centimetre.



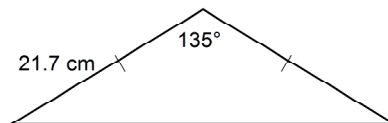
40. Determine the area of this triangle to the nearest tenth of a square centimetre.



41. The length of the body diagonal in this rectangular prism is 65 cm. The width of the prism is 31 cm. The measure of  $\angle AFH$  is  $19^\circ$ . Determine the height and the length of the rectangular prism to the nearest centimetre.



42. Determine the area of this triangle to the nearest tenth of a square centimetre.



**Math 10 - Unit 2 - Trigonometry - REVIEW WORKSHEET  
Answer Section****MULTIPLE CHOICE**

1. D
2. C
3. D
4. C
5. D
6. C
7. C
8. B
9. C
10. D
11. C
12. C
13. A
14. C
15. D
16. C
17. C
18. C
19. B
20. B
21. A
22. A
23. B
24. C
25. B
26. C
27. B
28. B

**SHORT ANSWER**

29.  $\angle B \doteq 54.5^\circ$
30. 11.7 cm
31.  $\angle C$  is approximately  $58.7^\circ$  and  $\angle A$  is approximately  $31.3^\circ$ .
32. 34 m
33.  $\angle B \doteq 59.5^\circ$
34. The angle of elevation of the tower from the new location is approximately  $35.7^\circ$ .



35.  $\angle C$  is approximately  $58.4^\circ$  and  $\angle A$  is approximately  $31.6^\circ$ .
36.  $MN = 6.7$  cm  
 $LM = 13.2$  cm  
 $\angle L = 27.0^\circ$
37. 10.5 cm
38. 26.5 cm

39.

Determine the height of the prism.

In right  $\triangle AHF$ , the height,  $AH$ , is opposite  $\angle AFH$  and  $AF$  is the hypotenuse.

Use the sine ratio in  $\triangle AHF$ .

$$\sin F = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\sin F = \frac{AH}{AF}$$

$$\sin 19^\circ = \frac{AH}{64}$$

$$64 \sin 19^\circ = AH$$

$$AH = 20.8363\dots$$

The height of the prism is approximately 21 cm.

Determine the length of the prism.

In right  $\triangle AHF$ ,  $FH$  is adjacent to  $\angle AFH$  and  $AF$  is the hypotenuse.

Use the cosine ratio in  $\triangle AHF$ .

$$\cos F = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\cos F = \frac{FH}{AF}$$

$$\cos 19^\circ = \frac{FH}{64}$$

$$64 \cos 19^\circ = FH$$

$$FH = 60.5131\dots$$

Use the Pythagorean Theorem in  $\triangle EHF$  to determine the length of the prism,  $EF$ .

$$FH^2 = EH^2 + EF^2$$

$$60.5131\dots^2 = 31^2 + EF^2$$

$$60.5131\dots^2 - 31^2 = EF^2$$

$$EF = \sqrt{60.5131\dots^2 - 31^2}$$

$$EF = 51.9696\dots$$

The length of the prism is approximately 52 cm.

40. The area of the triangle is approximately 178.2  $\text{cm}^2$ .

41.

Determine the height of the prism.

In right  $\triangle AHF$ , the height,  $AH$ , is opposite  $\angle AFH$  and  $AF$  is the hypotenuse.

Use the sine ratio in  $\triangle AHF$ .

$$\sin F = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\sin F = \frac{AH}{AF}$$

$$\sin 19^\circ = \frac{AH}{65}$$

$$65 \sin 19^\circ = AH$$

$$AH = 21.1619\dots$$

The height of the prism is approximately 21 cm.

Determine the length of the prism.

In right  $\triangle AHF$ ,  $FH$  is adjacent to  $\angle AFH$  and  $AF$  is the hypotenuse.

Use the cosine ratio in  $\triangle AHF$ .

$$\cos F = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\cos F = \frac{FH}{AF}$$

$$\cos 19^\circ = \frac{FH}{65}$$

$$65 \cos 19^\circ = FH$$

$$FH = 61.4587\dots$$

Use the Pythagorean Theorem in  $\triangle EHF$  to determine the length of the prism,  $EF$ .

$$FH^2 = EH^2 + EF^2$$

$$61.4587\dots^2 = 31^2 + EF^2$$

$$61.4587\dots^2 - 31^2 = EF^2$$

$$EF = \sqrt{61.4587\dots^2 - 31^2}$$

$$EF = 53.0676\dots$$

The length of the prism is approximately 53 cm.

42. The area of the triangle is approximately  $166.5 \text{ cm}^2$ .