

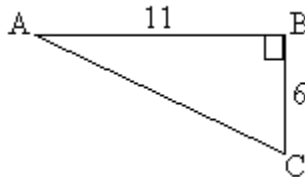
Multiple Choice Questions

Place the letter that corresponds with the correct answer in the space provided to the right. (10 marks)

1. What is the measure of $\angle X$ to the nearest degree if $\sin X = \frac{4}{9}$? 1. C
- a) 7° b) 64°
 c) 26° d) 83°

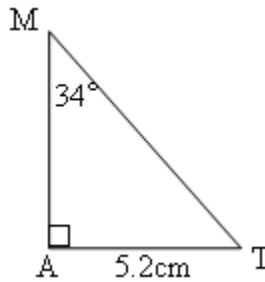
2. What is the measure of $\angle A$ to the nearest degree? 2. B

- a) 61°
 b) 29°
 c) 40°
 d) 50°



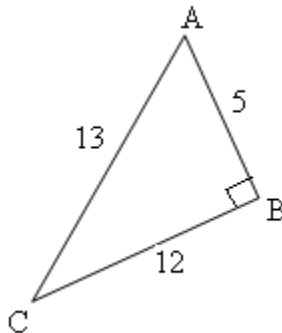
3. What is the length of MA to the nearest tenth? 3. D

- a) 0.1 cm
 b) 3.5 cm
 c) 17.0 cm
 d) 7.7 cm



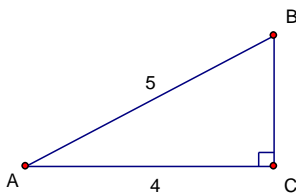
4. What is the correct ratio for $\sin A$? 4. B

- a) $\frac{5}{12}$
 b) $\frac{12}{13}$
 c) $\frac{5}{13}$
 d) $\frac{13}{12}$

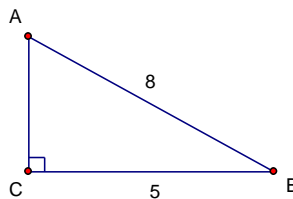


5. In which of the following triangles is $\cos B = 0.8$? 5. D

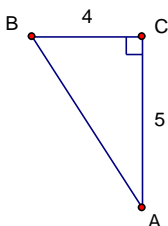
a)



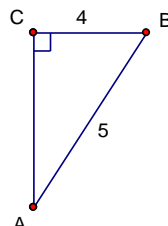
b)



c)



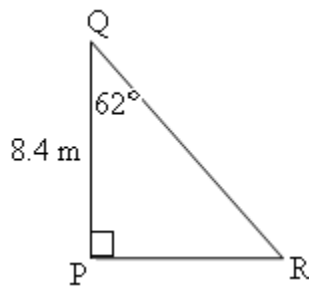
d)



6. What is the area of $\triangle PQR$ below?

6. C

- a) 15.8 m
- b) $31.2m^2$
- c) $66.4m^2$
- d) $16.6m^2$



7. A student sees a bird on top of a 12m high light pole. The student is standing 20m from the base of the pole. At what angle must the student incline her camera to take a picture of the bird?

7. A

- a) 31°
- b) 37°
- c) 59°
- d) 87°

8. An airplane approaches an airport. At a certain time, the plane is 1020m high. Its angle of elevation measured from the airport is 20.5° . How far is the plane from the airport to the nearest meter?

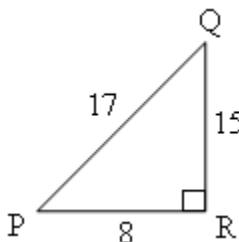
8. B

- a) 2728 m
- b) 2913 m
- c) 1089 m
- d) 3 m

9. Which of the following statements is true of the diagram below?

9. D

- a) $\cos P = \frac{8}{15}$
- b) $\tan Q = \frac{15}{8}$
- c) $\sin P = \frac{8}{17}$
- d) $\cos Q = \frac{15}{17}$



10. Which of the following is not correct to the nearest hundredth?

10. C

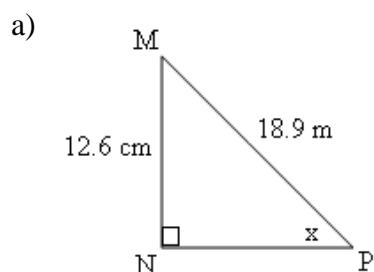
- a) $\sin 75^\circ = 0.97$
- b) $\tan 37^\circ = 0.75$
- c) $\tan 18^\circ = 0.23$
- d) $\cos 46^\circ = 0.69$

Short Answer Questions

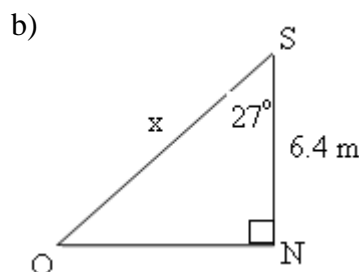
Complete each of the following in the space provided. Be sure to show *all* necessary steps.

1. Find the value of x in each of the following diagrams. Give answers to the nearest tenth.

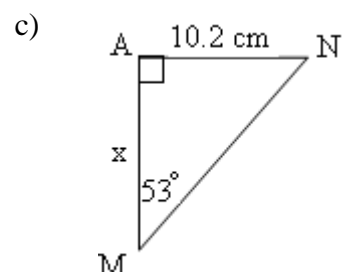
(6 marks)



$x = 41.8^\circ$

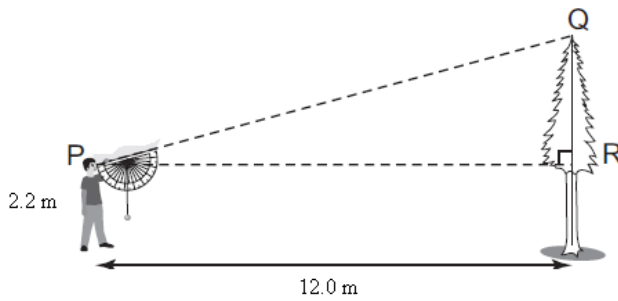


$x = 7.2 \text{ m}$



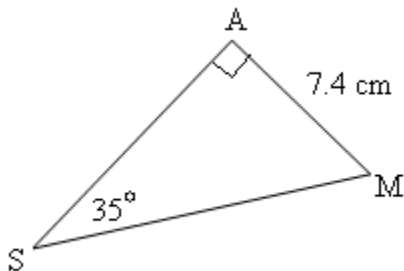
$x = 7.7 \text{ cm}$

2. Thomas stood 12.0 m from the base of a tree. He used a clinometer to sight the top of the tree. The angle shown on the clinometer was 70° . Thomas held the clinometer 2.2 m about the ground. Determine the height of the tree to the nearest tenth of a metre. (3 marks)



The tree is 6.6 m tall.

3. Solve the following triangle. Give the side lengths to the nearest tenth of a centimeter and the angle measures to the nearest degree. (5 marks)

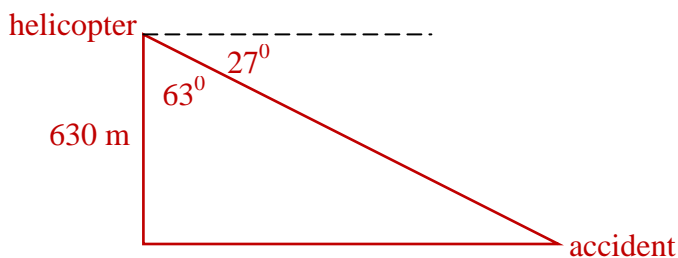


$\angle M = 55^\circ$

$AS = 10.6 \text{ cm}$

$SM = 12.9 \text{ cm}$

4. A traffic helicopter is patrolling the air. The chopper is 630m above the highway. An accident is located at an angle of depression of 27° from the chopper. How far along the highway is the accident? Include a sketch. (3 marks)



The accident is 1236 m away.

5. A person stands at a window on the 9th floor of an office tower. He measures the angle of elevation to be 25° and the angle of depression to be 36° of the top and the base of a tower. The person knows that he made the measurements 40 m above the ground. Determine the height of the tower to the nearest tenth of a metre.

The height of the tower is 65.7 m.

