Name: _____ **Total:** /25

Trigonometry - Measurement Assignment

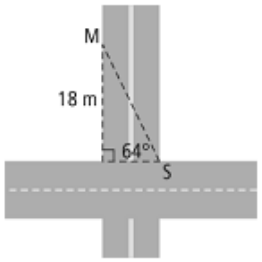
Multiple Choice (15 marks):

____ **1.** A right triangle has legs measuring 6 cm and 8 cm. The length of the hypotenuse is

a. 10 cm **c.** 48 cm

b. 14 cm **d.** 100 cm

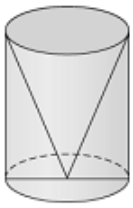
____ **2.** A surveyor, S, is measuring the width of a street, using a marker, M. The surveyor cannot measure the width directly, because there is too much traffic. She stands on the east side of the intersection. The marker is on the west side of the intersection, and is 18 m north of the intersection. Determine the width of the street, to the nearest tenth of a metre.



a. 36.9 m **c.** 13.1 m

b. 24.8 m **d.** 8.8 m

____ **3.** A cone just fits inside a can. The diameter of the can is 7.6 cm and the height is 10.4 cm. Determine the angle between the vertex of the cone and the bottom of the can, to the nearest tenth of a degree.



a. 20.1° **c.** 69.9°

b. 40.1° **d.** 139.9°

____ **4.** A ladder leans against a vertical wall and makes an angle of 76° with the ground. The foot of the ladder is 1.8 m from the base of the wall. Determine the vertical distance from the ground to the top of the ladder, to the nearest tenth of a metre.

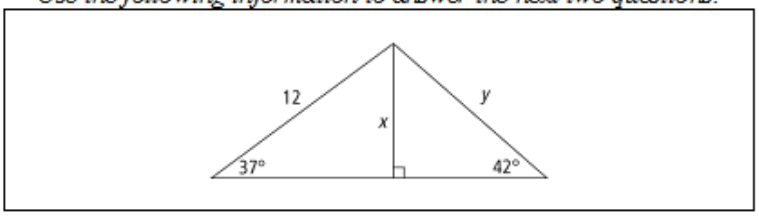
a. 0.4 m

b. 1.8 m

c. 4.0 m

d. 7.2 m

Use the following information to answer the next two questions.



____ **5.** Determine the length of x, to the nearest tenth of a metre.

a. $x = 6.2$ m

b. $x = 10.3$ m

c. $x = 9.6$ m

d. $x = 7.2$ m

____ **6.** Determine the length of y, to the nearest tenth of a metre.

a. $y = 9.7$ m

b. $y = 10.8$ m

c. $y = 12.9$ m

d. $y = 14.3$ m

____ **7.** If $\sin A = \frac{7}{8}$, what is the measure of $\angle A$, to the nearest degree?

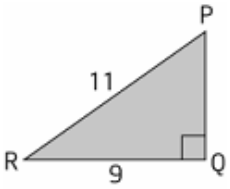
a. 62°

b. 61°

c. 60°

d. 59°

____ **8.** Determine the measure of $\angle R$, to the nearest degree.



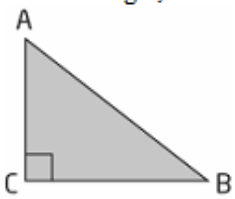
a. 33°

c. 36°

b. 35°

d. 40°

____ **9.** In the triangle, BC = 11 cm and $\angle B = 36^\circ$. Determine the length of AB, to the nearest centimetre.



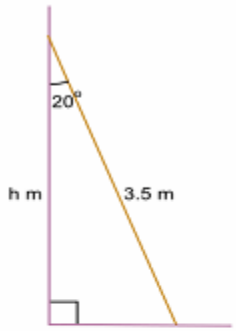
a. 14 cm

c. 15 cm

b. 19 cm

d. 9 cm

Use the following information the answer the next question.



The diagram shows a ladder leaning against a vertical wall.

___ **10.** How high up the wall does the ladder reach?

a. 1.20 m

c. 1.27 m

b. 3.29 m

d. 9.62 m

____ **11.** What is the slant height of a right cone with surface area 275.7 m^2 and radius 4.5 m?

a. 11 m

c. 15 m

b. 13 m

d. 30 m

____ **12.** Convert 92 cm to the nearest tenth of an inch.

a. 9.2 in

c. 84.1 in.

b. 36.2 in.

d. 233.7 in.

____ **13.** How long is 5 ft 9 in. in meters? Round your answer to the nearest hundredth.

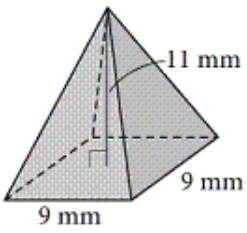
a. 18.86 m

c. 1.75 m

b. 9.26 m

d. 5.93 m

____ **14.** Determine the surface area of the right pyramid, to the nearest square millimetre?



a. 279

c. 477

b. 295

d. 891

____ **15.** Calculate the surface area of a right cylinder with diameter 11.4 cm and height 15.6 cm, to the nearest square centimetre.

a. 763 cm^2

c. 2151cm^2

b. 1591 cm^2

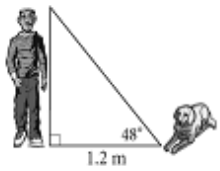
d. 6366 cm^2

Numeric Response (5 marks):

1. A telephone pole is secured with a guy-wire as shown in the diagram. The guy-wire makes an angle of 75° with the ground and is secured to the ground 6 m from the bottom of the pole. Determine the length of the wire, to the nearest tenth of a metre.

2. Rob decides to go parasailing while on vacation. The flyer advertises that the maximum height reached during the trip will be 68 m. If the parasailing cable is 91 m long, what angle will the cable make with the horizontal when Rob reaches the maximum height? Answer to the nearest degree.

3. Max's dog is lying on the ground 1.2 m away from him. The angle of elevation from the dog to the top of Max's head is 48°. How tall is Max, to the nearest tenth of a metre?



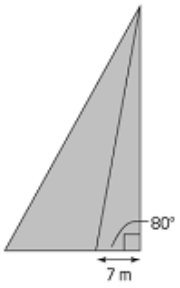
4. The volume of a right cylinder with radius 1 m and height 3 m, to the nearest tenth of a cubic metre, is _____.

5. To the nearest cubic centimetre, the volume of a sphere with diameter 8 cm is _____.

Problems (5 marks):

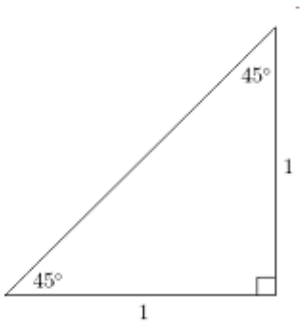
1. Solve triangle ABC given $\angle ABC = 90^{\circ}$, $AC = 17.2cm$ and $AB = 13.9cm$. Round all measurements to the nearest tenth. (1 mark).

2. A telephone pole is secured with two cables. The first cable is attached to the top of the pole and makes an angle of 80° with the ground. The cable is secured to the ground 7 m from the bottom of the pole. The second cable is attached to the top of the pole and secured to the ground three times as far from the pole as the first cable is, on the same side of the pole. Determine the angle the second cable makes with the ground, to the nearest degree. (1 mark).



3. Tony is standing on a cliff, he spots a boat in the water below. The angle of depression of the boat from Tony is 25^{o}. Tony is 320 m away from the boat. How far is the boat from the base of the cliff, to the nearest meter? (1 mark).

4. Given the following special triangle, determine the missing side length and state the three trigonometric ratios.



a) Determine the missing side length, as a radical. (1 mark).

b) State the three trigonometric ratios for 45^{o}. (1 mark).