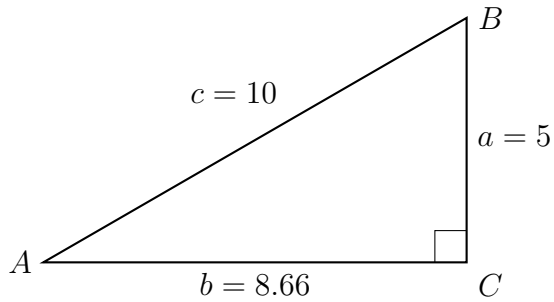


Name:

10.7 Do Now: Volume, density, trig review

1. $\triangle ABC$ is shown with $m\angle C = 90^\circ$ and the lengths of the triangle's sides are $a = 5$, $b = 8.66$, and $c = 10$.

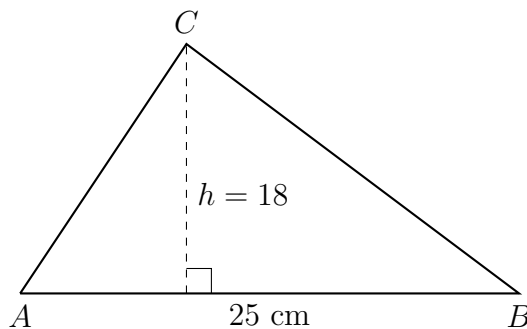


(a) Find $\sin A$

(b) Find $\cos A$

(c) Find $\tan A$

2. Find the area of $\triangle ABC$, $Area = \frac{1}{2}bh$. The altitude h of the triangle is 18 centimeters and the base $AB = 25$ cm.

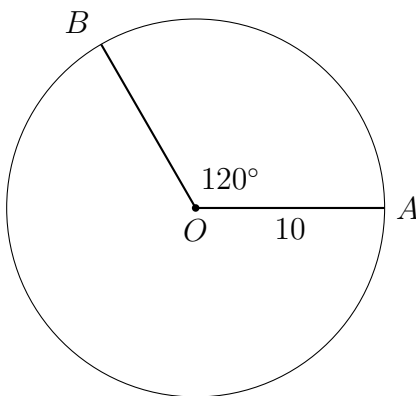


3. Given $S(7, -1)$ and $T(5, 3)$, find the length of \overline{ST} . Simplify the radical.

4. Find the volume of a cylinder with radius $r = 3$ and height $h = 10$. Leave your answer in terms of π (not a decimal).

5. Find the weight of 60 liters of gasoline, given that the density of gasoline is 0.73 kilograms per liter.

6. Circle O has a radius $AO = 10$, as shown below, and $m\angle AOB = 120^\circ$.



- (a) Find the length of the arc \widehat{AB} .

- (b) Find the area of the sector AOB .

Name:

10.7 Classwork: Density, area, & volume calculations

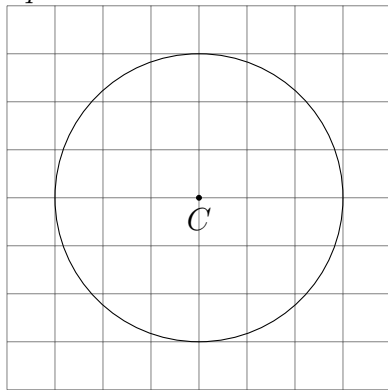
1. Express the result to the nearest thousandth.

(a) $\sin 30^\circ =$

(b) $\cos 39^\circ =$

2. Given a circular area C with radius $r = 4$ in miles, as shown.

- (a) Find the area of the circle. Round your answer *to the nearest thousandth of a square mile*.



- (b) If each square mile equals 640 acres, what is the area of the space in acres, *to the nearest acre*?

3. A standard gold bar measures 7 inches long by 3.625 inches wide by 1.75 inches tall.

- (a) Find the volume of the bar in cubic inches (exactly, no rounding).

- (b) The density of gold is 0.698 pounds per cubic inch. Find the weight of the bar to the nearest pound.

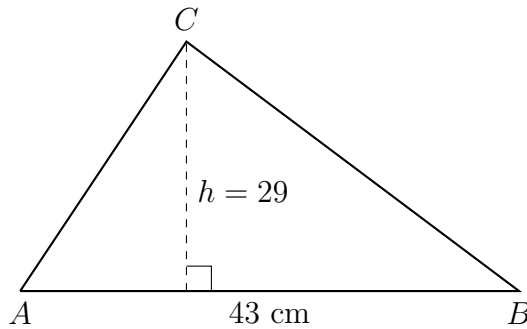
- Find the weight of a large glass marble with a diameter of 1.5 inches, to the *nearest tenth of an ounce*. (The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$ and the density of glass is 1.49 ounce per cubic inch)
- Find the weight of a stone pyramid ($V = \frac{1}{3}Bh$) having a height of 10 feet and with a square base having side lengths of 12 feet. Express your result to the *nearest pound*. The density of stone is about 150 pounds per cubic foot.

Name:

10.7 Homework: Volume, density, & trig review

1. Find the area of a semi-circle radius of 8. Round your answer *to the nearest hundredth*.
2. Find the volume of a cone ($V = \frac{1}{3}\pi r^2 h$) having a height of 9 inches and with a radius of 4 inches. Express your result to the *nearest cubic inch*.
3. Find the volume of a cylinder 10 inches tall with a radius of 6 inches, to the *nearest whole cubic inch*. (The formula for the volume of a *cylinder* is $V = \pi r^2 h$)

4. Find the area of $\triangle ABC$, $Area = \frac{1}{2}bh$. The altitude h of the triangle is 29 centimeters and the base $AB = 43$ cm.



5. Find the weight of a steel ball bearing (sphere) with a radius of 1.0 centimeter, to the *nearest hundredth of a gram*. (The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$ and the density of steel is 7.9 grams per cubic cm.)
6. Find the weight of a plastic cone ($V = \frac{1}{3}Bh$) having a height of 10 inches and diameter of 12 inches. Express your result to the *nearest ounce*. Use a density of 0.55 ounce per cubic inch for plastic (high density polyethylene).

Name:

7. Express the result to the nearest thousandth.

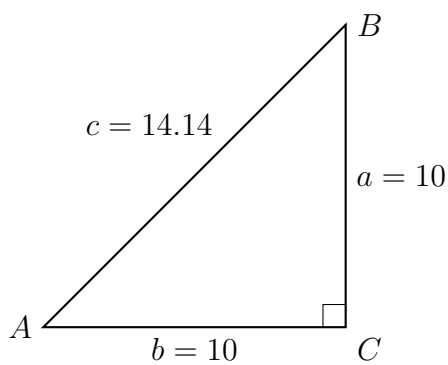
(a) $\sin 45^\circ =$

(c) $\sin 55^\circ =$

(b) $\tan 60^\circ =$

(d) $\cos 30^\circ =$

8. $\triangle ABC$ is shown with $m\angle C = 90^\circ$ and the lengths of the triangle's sides are $a = 14.14$, $b = 10$, and $c = 10$.



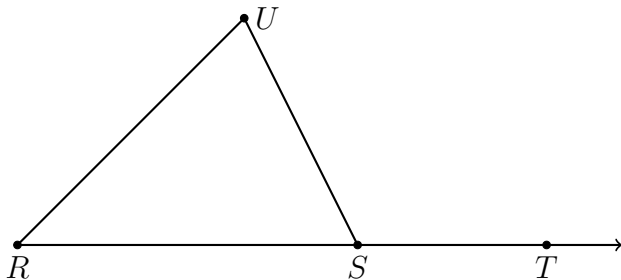
(a) Find $\sin A$

(b) Find $\cos A$

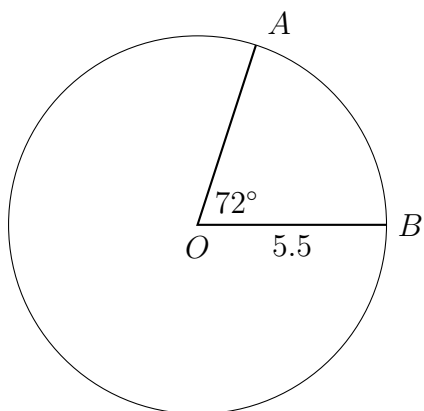
(c) Find $\tan A$

9. Given $A(-1, -1)$ and $B(5, 2)$, find the length of \overline{AB} . Simplify the radical.

10. Given $m\angle R = 40$ and $m\angle UST = 105$. Find $m\angle U$.



11. Given circle O with radius $OB = 5.5$.



- (a) Find the circumference of circle O .
- (b) Find its area.
- (c) Given that $m\angle AOB = 72^\circ$, find the length of the arc \widehat{AB} .
- (d) Find the area of the sector AOB .