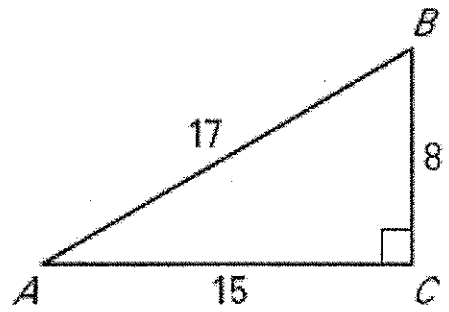
Geometry **Name** Key

Review 7.4-7.7

Match the trigonometric expression with the correct ratio. Some ratios may be used more than once, and some may not be used at all. Then find the angle measurement.

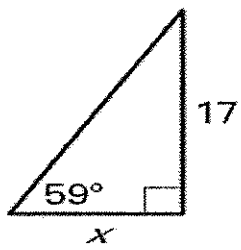
A. $\frac{8}{15}$ B. $\frac{17}{8}$ C. $\frac{15}{17}$ D. $\frac{15}{8}$ E. $\frac{17}{15}$ F. $\frac{8}{17}$

1.	sin A = $\frac{8}{17}$	F	$\angle A = 28°$
2.	cos A = $\frac{15}{17}$	C	$\angle A = 28°$
3.	tan A = $\frac{8}{15}$	A	$\angle A = 28°$
4.	sin B = $\frac{15}{17}$	C	$\angle B = 62°$
5.	cos B = $\frac{8}{17}$	F	$\angle B = 62°$
6.	tan B = $\frac{15}{8}$	D	$\angle B = 62°$



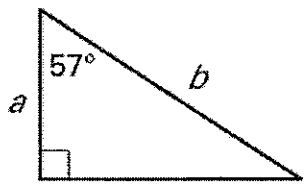
Which Trig Function would you use to find the indicated variable(s)?

7. To find x use: Tan

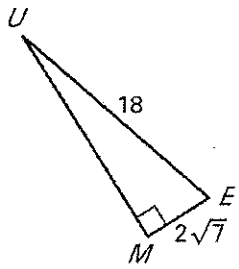


8. To find a use: Tan

To find b use: Sin



9. To find angle U use: Sin



Use the diagram to find the indicated measurement. Round answers to the nearest tenth.

10. MN = 16.6

11. $m\angle M$ = 65°

12. $m\angle N$ = 25°

13. Perimeter of ΔMNP = 38.6

14. Area of ΔMNP = 52.5

$7^2 + 15^2 = MN^2$

$49 + 225 = MN^2$

$274 = MN^2$

$\sqrt{274} = MN$

$16.552 = MN$

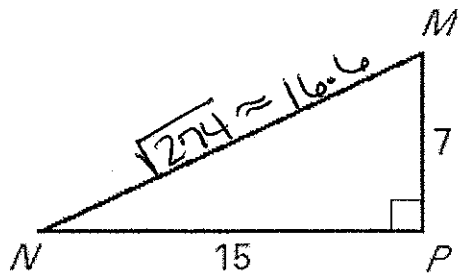
$16.6 = MN$

$\tan M = \frac{15}{7}$

$M = 64.9831$

$\angle M \approx 65°$

$P = 7 + 15 + 16.6 = 38.6$



$\tan N = \frac{7}{15}$

$N \approx 25.0168$

$\angle N \approx 25°$

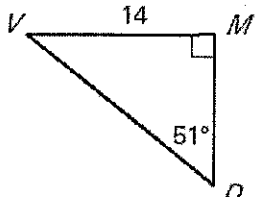
$A = \frac{1}{2}bh \rightarrow A = \frac{1}{2}(15)(7)$

$\rightarrow A = 52.5$

Solve the right triangle. Round answers to the nearest tenth.

15.

$\angle V = 39°$



$\tan 51° = \frac{14}{MD}$

$MD = \frac{14}{\tan 51°}$

$MD \approx 11.336...$

$MD = 11.3$

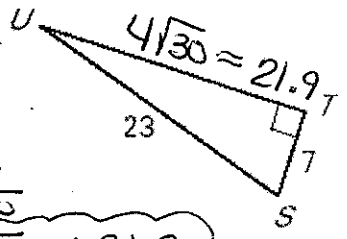
$\sin 51° = \frac{14}{DV}$

$DV = \frac{14}{\sin 51°}$

$DV \approx 18.0146...$

$DV = 18.0$

16.



$7^2 + UT^2 = 23^2$

$49 + UT^2 = 529$

$UT^2 = 480$

$UT = \sqrt{480}$

$UT = 4\sqrt{30} \approx 21.9$

$\cos S = \frac{7}{23}$

$\sin U = \frac{7}{23}$

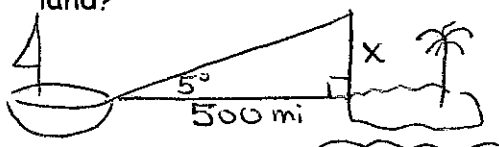
$\angle S \approx 72.2810..$

$\angle U \approx 17.7189$

$\angle S \approx 72°$

$\angle U \approx 18°$

17. A ship is sailing due East towards an island 500 miles away. If it sails 5° off course how far from the island will it land?

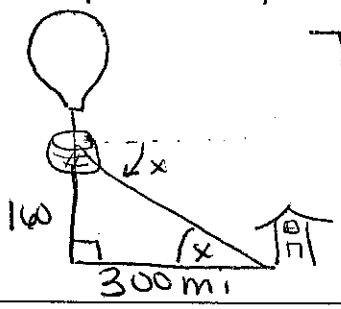


$\tan 5° = \frac{x}{500}$

$43.7443... = x$

it will land 44 miles away from the island

18. You are flying in a hot air balloon 160 meters off the ground. You spot your house which is directly 300 m away (horizontally). Find the angle of depression to your house.



$\tan x = \frac{160}{300}$

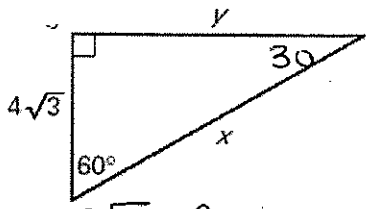
$x \approx 28.0724$

$x \approx 28°$

$\angle$ of depression 28°

Find the exact length (simplified radical form) for the following variables.

19.



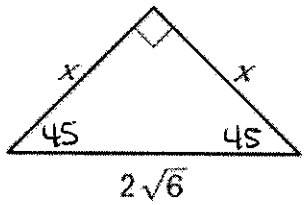
$2s = h$ $s\sqrt{3} = l$

$2(4\sqrt{3}) = x$ $(4\sqrt{3})(\sqrt{3}) = y$

$8\sqrt{3} = x$ $12 = y$

$x = 8\sqrt{3}$ $y = 12$

20.



$x\sqrt{2} = h$

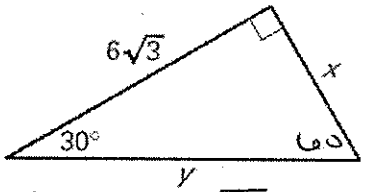
$x\sqrt{2} = 2\sqrt{6}$

$x = \frac{2\sqrt{6}}{\sqrt{2}}$

$x = 2\sqrt{3}$

$x = 2\sqrt{3}$

21.



$2s = h$ $s\sqrt{3} = l$

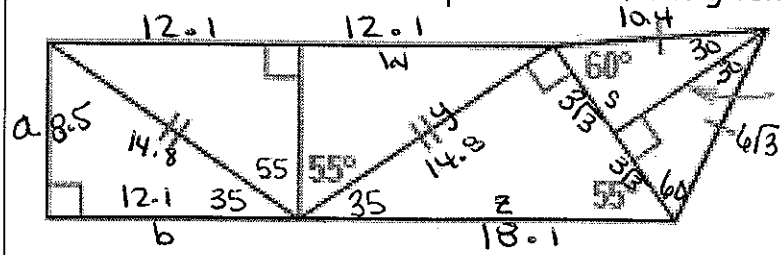
$2x = y$ $x\sqrt{3} = 6\sqrt{3}$

$2(6) = y$ $x = 6$

$12 = y$

$x = 6$ $y = 12$

22. **CHALLENGE!!** Find the perimeter of the given figure.



$s\sqrt{3} = l$

$s\sqrt{3} = 9$

9 cm $s = \frac{9}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$s = 3\sqrt{3}$

$\tan 55° = \frac{y}{6\sqrt{3}}$

$14.8 = y$

$\sin 55 = \frac{w}{14.8}$

$12.1 = w$

$\cos 55 = \frac{6\sqrt{3}}{z}$

$z = 18.1$

$\sin 35 = \frac{a}{14.8}$

$8.5 = a$

$\cos 35 = \frac{b}{14.8}$

$12.1 = b$

$P = 8.5 + 12.1 + 18.1 + 10.4 + 10.4 + 12.1 + 12.1 = 83.7$

Perim = 83.7