8-4 Skills Practice

Trigonometry

Use $\triangle RST$ to find sin R, cos R, tan R, sin S, cos S, and tan S.
Express each ratio as a fraction and as a decimal to the
nearest hundredth.

1. $r = 16$, $s = 30$, $t = 34$
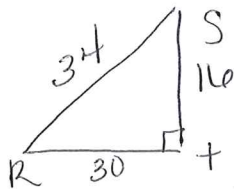
$\sin R = \frac{16}{34} = \frac{8}{17}$

$\cos R = \frac{30}{34} = \frac{15}{17}$

$\tan R = \frac{16}{30} = \frac{8}{15}$

$\sin S = \frac{30}{34} = \frac{15}{17}$

$\cos S = \frac{16}{34} = \frac{8}{17}$

$\tan S = \frac{30}{16} = \frac{15}{8}$

2. $r = 10$, $s = 24$, $t = 26$

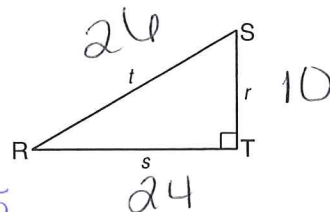$\sin R = \frac{10}{26} = \frac{5}{13}$

$\cos R = \frac{24}{26} = \frac{12}{13}$

$\tan R = \frac{10}{24} = \frac{5}{12}$

$\sin S = \frac{24}{26} = \frac{12}{13}$

$\cos S = \frac{10}{26} = \frac{5}{13}$

$\tan S = \frac{24}{10} = \frac{12}{5}$

Use a calculator to find each value. Round to the nearest ten-thousandth.

3. sin 5 0.0872

4. tan 23 0.4245

5. cos 61 0.4848

6. sin 75.8

0.9694

7. tan 17.3 0.3115

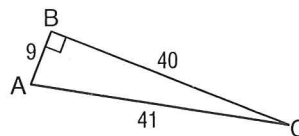**8.** cos 52.9 0.6032

Use the figure to find each trigonometric ratio. Express
answers as a fraction and as a decimal rounded to the
nearest ten-thousandth.

9. tan C

$\frac{9}{40}$

10. sin A

$\frac{40}{41}$

11. cos C

$\frac{40}{41}$

Find the measure of each acute angle to the nearest tenth of a degree.

12. sin $B = 0.2985$ 17.4

13. tan $A = 0.4168$ 22.6

14. cos $R = 0.8443$ 32.4

15. tan $C = 0.3894$ 21.3

16. cos $B = 0.7329$ 42.9

17. sin $A = 0.1176$ $6.$

Find x. Round to the nearest tenth.

18.

$x = \sin^{-1}(13/27)$

$x = 28.8°$

19.

$x = \tan^{-1}(27/8)$

$x = 73.5°$

20.

$\cos(33) = \frac{x}{19}$

$x = 15.9 \text{ units}$
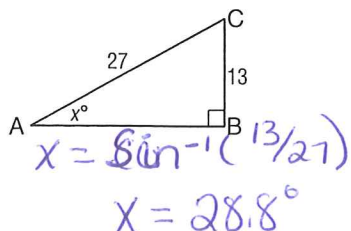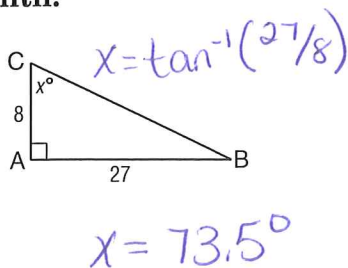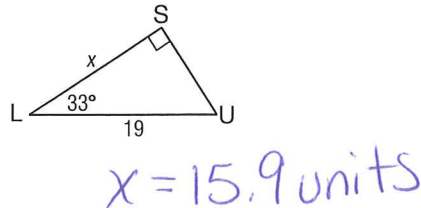
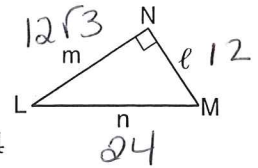## 8-4 Practice

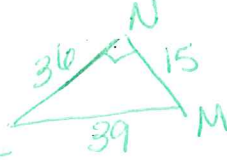### Trigonometry

Use △LMN to find sin L, cos L, tan L, sin M, cos M, and tan M. Express each ratio as a fraction and as a decimal to the nearest hundredth.

$12\sqrt{3}$ N ℓ 12
L n M
24

1. ℓ = 15, m = 36, n = 39

$\sin L = 15/39 = 5/13$
$\cos L = 36/39 = 12/13$
$\tan L = 15/36 = 5/12$
$\sin M = 36/39 = 12/13$
$\cos M = 15/39 = 5/13$
$\tan M = \frac{36}{15} = 12/5$

36 15
L 39 M

2. ℓ = 12, m = 12√3, n = 24

$\sin L = \frac{12}{24} = \frac{1}{2}$

$\cos L = \frac{12\sqrt{3}}{24} = \frac{\sqrt{3}}{2}$

$\tan L = \frac{12}{12\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

$\sin M = \frac{12\sqrt{3}}{24} = \frac{\sqrt{3}}{2}$

$\cos M = 12/24 = \frac{1}{2}$

$\tan M = \frac{12\sqrt{3}}{12} = \frac{\sqrt{3}}{1} = \sqrt{3}$ ✓

unit circle ACC ALG + ACC Geo topic
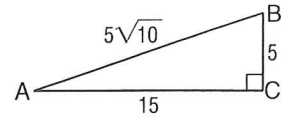
Use a calculator to find each value. Round to the nearest ten-thousandth.

3. sin 72.5 0.9537   4. tan 27.5 0.5206   5. cos 64.8 0.4258

Use the figure to find each trigonometric ratio. Express answers as a fraction ~~and as a decimal rounded to the nearest ten-thousandth.~~ Simplify!

$5\sqrt{10}$ B
A 15 C 5

6. cos A   7. tan B   8. sin A

$\frac{3\sqrt{10}}{10}$ $\frac{3}{1}$ $\frac{\sqrt{10}}{10}$

Find the measure of each acute angle to the nearest tenth of a degree.

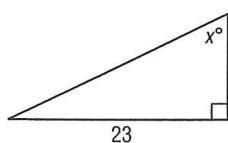9. sin B = 0.7823 51.5°   10. tan A = 0.2356 13.3°   11. cos R = 0.6401 50.2°
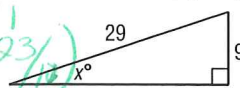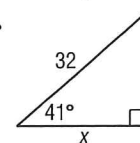
Find x. Round to the nearest tenth.

12.
$\tan x = 23/11$
$x = \tan^{-1}(23/11)$
11
23
$x = 64.4°$

13.
29 9
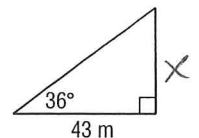x°
$x = \sin^{-1}(9/29)$
$x = 18.1°$

14.
32
41°
x
$\cos(41) = \frac{x}{32}$
$x = 24.2$

15. **GEOGRAPHY** Diego used a theodolite to map a region of land for his class in geomorphology. To determine the elevation of a vertical rock formation, he measured the distance from the base of the formation to his position and the angle between the ground and the line of sight to the top of the formation. The distance was 43 meters and the angle was 36 degrees. What is the height of the formation to the nearest meter?

36°
43 m
x

31 m $\tan 36 = \frac{x}{43}$

Lesson 8-4