Pre-Calculus
REVIEW: Unit F (ch 4) Part 2
When applicable, round side lengths to
the nearest tenth and degrees to the nearest
integer angle.

Name _____

1. Which of the following is an equation of the sine function with period $\frac{\pi}{2}$, phase shift left π, and vertical shift 1?

A) $y = \sin\left(4x - \frac{\pi}{4}\right) + 1$ B) $y = \sin(4x - 4\pi) + 1$

C) $y = \sin\left(\frac{x}{4} - \pi\right) + 1$ D) $y = \sin(4x + 4\pi) + 1$

2. Find the exact value of $\cos\left(\tan^{-1}\frac{4}{3}\right)$.

3. State the amplitude, period, and all transformations of $y = -2\sin(4x + \pi) + 1$.

4. Find $\arcsin\left(-\frac{\sqrt{3}}{2}\right)$, if it exists.

A $-\frac{\pi}{6}$ B $-\frac{\pi}{3}$ C $\frac{2\pi}{3}$ D does not exist

5. A pen made for livestock is constructed as triangle ABC with $m\angle A = 102°$, $m\angle B = 23°$, and $c = 20$ feet. Find a.

6. Which of the following is a vertical asymptote for the graph of $y = \tan x$?

A) $x = \frac{\pi}{2}$ B) $x = \pi$ C) $x = 3\pi$ D) $x = 0$

7. In $\triangle DEF$, $D = 52°$, $e = 9$, and $f = 14$. Find d.

8. James is designing a triangular stage for his band to perform on. The dimensions of the triangle are 12 feet, 22 feet, and 30 feet. What is the area of the stage?

9. In $\triangle RST$, $r = 2.4$ in., $s = 8.2$ in., and $t = 10.1$ in. Find $m\angle S$.

10. Use the given information to determine how many triangles exist, if any.

a) $a = 12$, $b = 17$, $m\angle A = 39°$ b) $a = 9$, $b = 7$, $m\angle A = 108°$ c) $a = 10$, $b = 15$, $m\angle A = 117°$

11. A case for displaying a large flag is triangle ABC with $m\angle A = 42°$, $m\angle B = 68°$, and $c = 15$ feet. Find a to the nearest tenth.

12. In $\triangle RST$, $m\angle R = 59°$, $s = 12$ in., and $t = 4$ in. Find the area of $\triangle RST$ to the nearest square inch.

Locate the vertical asymptote for each of the following functions:
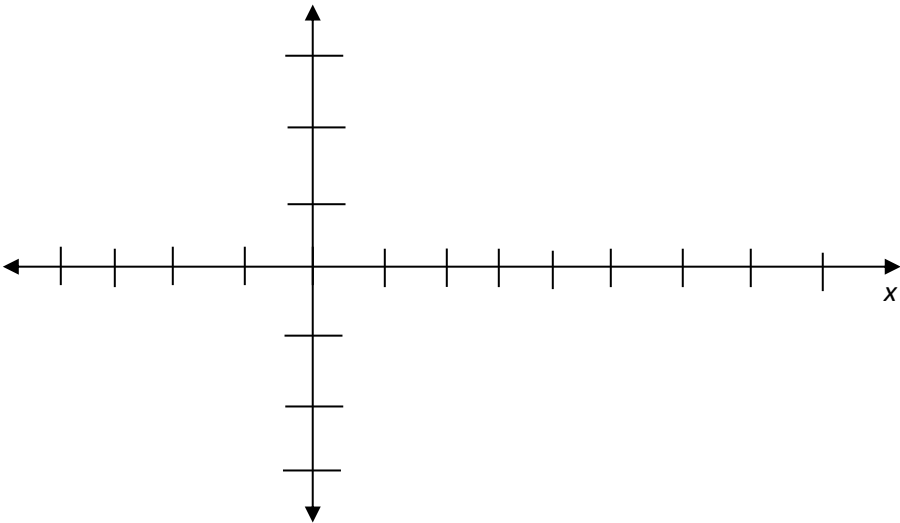13. $y = \sec(x - \pi)$ 14. $y = \csc 2x + 3$
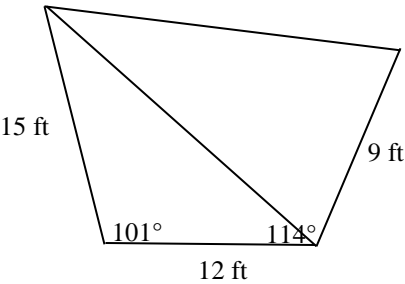
15. $y = \cot\frac{x}{4}$ 16. $y = \tan(3x + \frac{\pi}{2})$
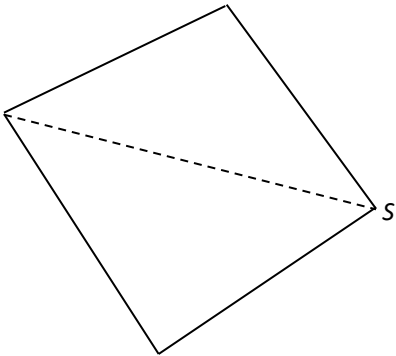
17. Graph $y = -\cos(2x - 2\pi) - 1$

| Original	a / b shift	h / k shift

18. Find the area of the quadrilateral. Throughout the problem, round side lengths to the nearest tenth, angle measures to the nearest degree, and each area to the nearest square foot.

15 ft   9 ft   101°   114°   12 ft

19. Starting from Simpson's Road, proceed N32°W for 320 m, then turn S56°W for 280 m to the old oak tree, then turn S22°E until Mulberry Lane is reached, and finally turn N68°E 329 m along Mulberry Lane back to the starting point. Find the area of the land. Throughout the problem, round side lengths to the nearest tenth, angle measures to the nearest degree, and each area to the nearest square foot.

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20. From the Southeast corner of the cemetery on Burnham Road, proceed S78°W for 250 m along the southern boundary of the cemetery until a granite post is reached, then S15°E for 180 m to Allard Road, then N78°E along Allard Road for 201 m until it intersects Burnham Road, and finally N30°E along Burnham Road back to the starting point. Find the area of the land. Throughout the problem, round side lengths to the nearest tenth, angle measures to the nearest degree, and each area to the nearest square foot.

c
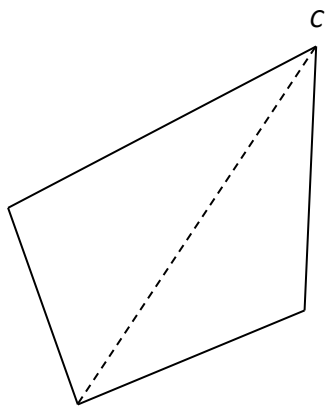
Section (SKILLS)	4.4 Graphing Sine & Cosine	4.5 Graphing other trig functions	4.6 Inverse Trig Functions	4.7 Law of Sines & Cosines
Concept				
Example:				
Concept				
Example:				
Concept				
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