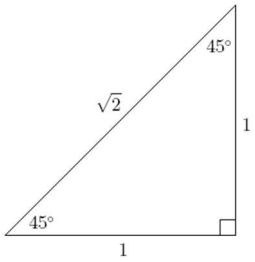
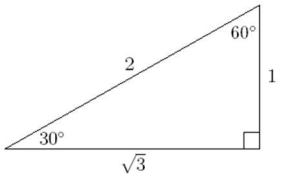
Unit 8 Final Review: Trigonometry

$\sin A = \frac{\text{opposite}}{\text{hypotenuse}}$ $\cos A = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\tan A = \frac{\text{opposite}}{\text{adjacent}}$

Special Triangles:





Sine Law: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$ Cosine Law: $c^2 = a^2 + b^2 - 2ab\cos C$

1. Find the reference angle for the following angles in standard position.

a) $112°$ b) $335°$ c) $70°$ d) $286°$

2. Find a positive and negative angle that is coterminal with :

a) $115°$ b) $38°$ c) $224°$ d) $-135°$

3. Write the general form for each angle in #2.

4. Verify if the following points are on a unit circle.

a) $\left(-\frac{1}{\sqrt{2}}, -\frac{\sqrt{3}}{2}\right)$ b) $\left(\frac{1}{\sqrt{2}}, -\frac{1}{\sqrt{2}}\right)$

5. Find the missing coordinate if each point is located on a unit circle.

a) $\left(x, -\frac{1}{\sqrt{5}}\right)$ in Quad III b) $\left(\frac{\sqrt{6}}{7}, y\right)$ in Quad IV

6. Determine the exact value of the following angles:

a) $\sin 150°$ b) $\cos 225°$ c) $\tan 300°$

7. Solve for θ.

a) $\tan\theta = -1$, $0° \le \theta < 360$ b) $\cos\theta = \frac{\sqrt{3}}{2}$, $0° \le \theta < 360°$

c) $\sin\theta = \frac{1}{2}$, $0° \le \theta < 360$ d) $\tan\theta = -\sqrt{3}$, $0° \le \theta < 360°$

8. Point $P\ (-4, 6)$ lies on the terminal arm of angle θ, in standard position. Determine the exact trig ratios for $\sin\theta, \cos\theta$, and $\tan\theta$.

9. Point $P\ (2, -7)$ lies on the terminal arm of angle θ, in standard position. Determine the exact trig ratios for $\sin\theta, \cos\theta$, and $\tan\theta$.

10. Determine the number of solutions for triangle ABC; $\angle A = 139°$, $a = 16\ cm$, and $b = 14\ cm$. You must prove this, guessing won't count. (Do not solve.)

11. Find side C if, in triangle ABC $\angle A = 40°$, $\angle B = 76°$, and $b = 48\ cm$. Round your answer to the nearest tenth.

12. In triangle PQR, $p = 14$, $q = 24$, and $r = 28$. Find the measure of angle Q (to the nearest degree).

13. In triangle DEF, $\angle D = 19°$, $e = 25$, and $f = 36$. Find the measure of side d, to the nearest tenth.