Precalculus Name_____ ID: 1



# Unit 5 and 6 Exam Review

Date_____ Period____

**Find the exact value of each.**

1) $\cos 195°$

2) $\cos -15°$

3) $\cos 297° \cos 147° + \sin 297° \sin 147°$

4) $\sin 398° \cos 98° - \cos 398° \sin 98°$

**Use identities to find the value of each expression.**

5) Find $\csc \theta$ and $\sec \theta$
if $\tan \theta = -2$ and $\sec \theta > 0$.

6) Find $\tan \theta$ and $\sin \theta$
if $\cos \theta = -\frac{5}{8}$ and $\tan \theta < 0$.

**Verify each identity.**

7) $\frac{1}{\sec x \cos^2 x} = \cos x \sec^2 x$

8) $\frac{\sec x}{\tan x} = \frac{1}{\sin x}$

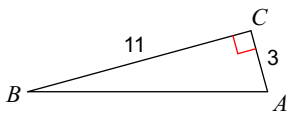
**Solve each equation for $0 \le \theta < 2\pi$.**

9) $-\sin\theta = -1$

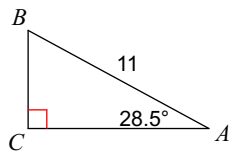
10) $-1 + \cos\theta = -1$

**Solve each triangle. Round answers to the nearest tenth.**

11)




12)




**In each problem, angle C is a right angle. Solve each triangle rounding answers to the nearest tenth.**

13) $m\angle A = 60°,\ a = 4$

14) $m\angle A = 42°,\ b = 5$

**Solve each triangle. Round your answers to the nearest tenth.**

15) $m\angle A = 75°, m\angle B = 20°, a = 31$ km

16) $m\angle C = 28°, b = 35$ km, $c = 29$ km

17) $m\angle C = 70°$, $b = 34$ m, $c = 27$ m

18) $b = 9$ mi, $a = 18$ mi, $m\angle C = 108°$

19) $b = 20$ in, $m\angle C = 132°$, $a = 22$ in

20) $a = 27$ km, $c = 15$ km, $b = 16$ km

**Find the area of each triangle to the nearest tenth.**

21) In $\triangle FDE$, $d = 16$ m, $m\angle F = 31°$, $e = 10$ m

22) In $\triangle EFD$, $d = 12$ km, $m\angle E = 53°$, $f = 5.7$ km

23) In $\triangle FDE$, $d = 10$ km, $e = 12$ km, $m\angle F = 65°$

24) In $\triangle EFD$, $d = 7$ cm, $m\angle E = 114°$, $f = 16$ cm

25) In $\triangle XYZ$, $z = 7$ ft, $m\angle X = 132°$, $y = 9$ ft

26) In $\triangle YZX$, $x = 10.7$ mi, $y = 7.9$ mi, $z = 10$ mi

# Answers to Unit 5 and 6 Exam Review (ID: 1)

1) $\frac{-\sqrt{6}-\sqrt{2}}{4}$

2) $\frac{\sqrt{6}+\sqrt{2}}{4}$

3) $-\frac{\sqrt{3}}{2}$

4) $-\frac{\sqrt{3}}{2}$

5) $-\frac{\sqrt{5}}{2}$ and $\sqrt{5}$

6) $-\frac{\sqrt{39}}{5}$ and $\frac{\sqrt{39}}{8}$

7) $\frac{1}{\sec x \cos^2 x}$ Use $\sec x = \frac{1}{\cos x}$

$\frac{\cos x}{\cos^2 x}$ Use $\sec x = \frac{1}{\cos x}$

$\cos x \sec^2 x$ ■

8) $\frac{\sec x}{\tan x}$ Decompose into sine and cosine

$\frac{\frac{1}{\cos x}}{\frac{\sin x}{\cos x}}$ Simplify

$\frac{1}{\sin x}$ ■

9) $\left\{\frac{\pi}{2}\right\}$

10) $\left\{\frac{\pi}{2}, \frac{3\pi}{2}\right\}$

11) $m\angle A = 74.7°$, $m\angle B = 15.3°$, $c = 11.4$

12) $m\angle B = 61.5°$, $b = 9.7$, $a = 5.2$

13) $m\angle B = 30°$, $b = 2.3$, $c = 4.6$

14) $m\angle B = 48°$, $a = 4.5$, $c = 6.7$

15) $m\angle C = 85°$, $c = 32$ km, $b = 11$ km

16) $m\angle A = 117.5°$, $m\angle B = 34.5°$, $a = 54.8$ km
*Or* $m\angle A = 6.5°$, $m\angle B = 145.5°$, $a = 7$ km

17) Not a triangle

18) $m\angle A = 49.6°$, $m\angle B = 22.4°$, $c = 22.5$ mi

19) $m\angle A = 25.2°$, $m\angle B = 22.8°$, $c = 38.4$ in

20) $m\angle A = 121.1°$, $m\angle B = 30.5°$, $m\angle C = 28.4°$

21) 41.2 m²

22) 27.3 km²

23) 54.4 km²

24) 51.2 cm²

25) 23.4 ft²

26) 37.6 mi²