

Pre-Calculus AB
Review Chapter 6.1-6.3

Name Key
Period _____

Use your calculator to find the following and round to **four** decimal places:

1. $\sec 42^\circ = \underline{1.3456}$

2. $\csc 78^\circ = \underline{1.0223}$

3. $\cot 102^\circ = \underline{-0.2126}$

Write the DMS degree in **decimal form**:

4. $17^\circ 25' 36''$

$\underline{17.4267^\circ}$

Write the decimal degree in **DMS form**:

5. 71.025°

$\underline{71^\circ 1' 30''}$

Write the DMS degree in **decimal form**:

6. $26^\circ 7' 10''$

$\underline{26.1194^\circ}$

Write the decimal degree in **DMS form**:

7. -25.36°

$\underline{-25^\circ 21' 36''}$

8. Find the **6 trig functions** of θ for the given triangle

$\sin \theta = \underline{\frac{\sqrt{33}}{7}}$

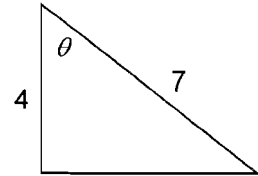
$\csc \theta = \underline{\frac{7\sqrt{33}}{33}}$

$\cos \theta = \underline{\frac{4}{7}}$

$\sec \theta = \underline{\frac{7}{4}}$

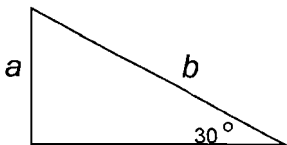
$\tan \theta = \underline{\frac{\sqrt{33}}{4}}$

$\cot \theta = \underline{\frac{4\sqrt{33}}{3}}$



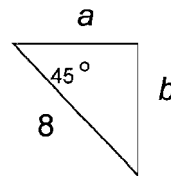
Find the **exact value** of the missing sides (without a calculator)

9.



$a = \underline{4\sqrt{3}}$ $b = \underline{8}$

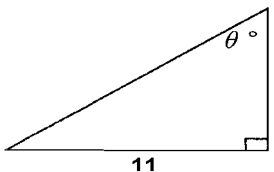
10.



$a = \underline{4\sqrt{2}}$ $b = \underline{4\sqrt{2}}$

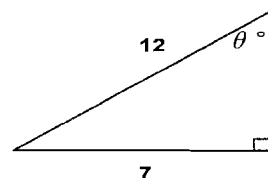
Find the angle θ in **degrees**:

11.



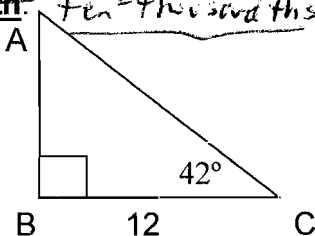
$\theta = \underline{61.8895^\circ}$

12.



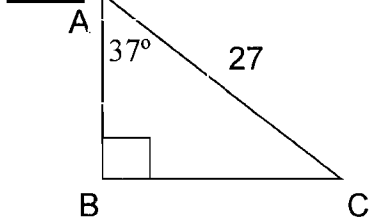
$\theta = \underline{35.6853^\circ}$

13. Solve the following right triangle. Round angles to the **nearest degree** and sides to the nearest **tenth**: *ten-thousandths*.



$\angle A = \underline{48^\circ}$ $b = \underline{16.1476}$ $c = \underline{10.8048}$

14. Solve the following right triangle. Round angles to the nearest degree and sides to the nearest tenth:



$\angle C = 53^\circ$ $a = 16.2490$ $c = 21.5632$

15. From the top of a lighthouse, at a height of 100 feet above sea level, the angle of depression to a sailboat adrift on the water is 21° . How far from the foot of the lighthouse is the sailboat? (Draw a picture)

260.5089 ft.

16. The Ohio Turnpike has a maximum uphill slope of 6° . How long must a straight uphill segment of the road be in order to allow a vertical rise of 450 feet? (Draw a picture)

4305.0475 ft.

Find one positive and one negative angle **coterminal** to the given angle:

17. $-\frac{13\pi}{7}$ possible
 (+) $-\frac{27\pi}{7}$
 (-) $\frac{\pi}{7}$

18. -330° (+) 30°
 (-) -690°

Convert the given radian measure to **degrees**:

19. $\frac{7\pi}{5} = 252^\circ$

Convert the given degree measure to **radians**. (Leave your answer in terms of π)

20. $-72^\circ = -\frac{2\pi}{5}$

Convert the given radian measure to **degrees**:

21. $-\frac{9\pi}{4} = -405^\circ$

Convert the given degree measure to **radians**. (Leave your answer in terms of π)

22. $325^\circ = \frac{65\pi}{36}$

Use the **arc length formula** for the following:

23. The second hand on a clock is 6 inches long. How far does its tip travel in 1 minute and 45 seconds?

$r = 6$
 $\theta = \frac{105}{60} (2\pi) = 7\pi/2$

$s = r\theta$
 $s = (6) (\frac{7\pi}{2})$
 $s = 21\pi$ inches or 65.9734 in

24. Find the angle when the radius is 9, and the arc length is 42π ?

$s = r\theta$
 $42\pi = (9)\theta$

$\theta = \frac{14\pi}{3}$