SM3 Test Review Unit 5- Trig Name Period:

Complete the following. Show all steps which lead to the solution. Draw pictures to show work when necessary.

Section I: NO CALCULATOR

1. Sketch and label the measure of the sides and angles of a $30-60-90^o$ triangle and a $45-45-90^o$ triangle.

2. Use your sketch of the triangles in problem one above to evaluate the following.

A. $tan\frac{\pi}{6}$ B. $sec\frac{\pi}{4}$ C. $cos\frac{\pi}{3}$

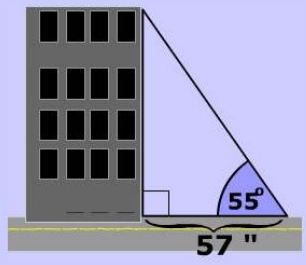
For problems 3-8, find all 6 trig functions. ANSWER MUST BE AN EXACT ANSWER. NO DECIMALS!

3. $sin\frac{-\pi}{3}$ = $csc\frac{-\pi}{3}$ = $cos\frac{-\pi}{3}$ = $sec\frac{-\pi}{3}$ = $tan\frac{-\pi}{3}$ = $cot\frac{-\pi}{3}$ =	4. $sin\frac{-5\pi}{4}$ = $csc\frac{-5\pi}{4}$ = $cos\frac{-5\pi}{4}$ = $sec\frac{-5\pi}{4}$ = $tan\frac{-5\pi}{4}$ = $cot\frac{-5\pi}{4}$ =
5. $sin\frac{7\pi}{6}$ = $csc\frac{7\pi}{6}$ = $cos\frac{7\pi}{6}$ = $sec\frac{7\pi}{6}$ = $tan\frac{7\pi}{6}$ = $cot\frac{7\pi}{6}$ =	6. $sin\frac{\pi}{2}$ = $csc\frac{\pi}{2}$ = $cos\frac{\pi}{2}$ = $sec\frac{\pi}{2}$ = $tan\frac{\pi}{2}$ = $cot\frac{\pi}{2}$ =
7. $sin(-\pi)$ = $csc(-\pi)$ = $cos(-\pi)$ = $sec(-\pi)$ = $tan(-\pi)$ = $cot(-\pi)$ =	8. $sin8\pi$ = $csc8\pi$ = $cos8\pi$ = $sec8\pi$ = $tan8\pi$ = $cot8\pi$ =

9. Solve: $5(x+2)^{3/2}-4=16$	10. Solve using the quadratic formula. Then use the solutions (zeros) to rewrite the polynomial in factored form. $x^2-10x+61=0$
11. Simplify: $\frac{3x^2+7x}{x^2+8x-9}-\frac{2x}{x+9}$	12. Simplify: $\frac{2x^2-200}{4x^2-40x}\cdot\frac{7x+21}{x^2+7x-30}\div\frac{1}{2x-6}$

13. The ages within a particular population are normally distributed with a mean of 78 years, and a standard deviation of 5.2 years. Sixtyeight percent of this population area between the ages of _____ and _____.	14. The mean age in a certain community is 52 with a standard deviation of 22. You take a sample of 120 people from that community and find a mean age of 61. Calculate a margin of error for this sample. $ME = 1.96\left(\frac{s}{\sqrt{n}}\right)$ Use your margin of error to calculate a 95% confidence interval. $CI = \bar{x} \pm ME$ Does your sample provide strong evidence that the mean age has changed from 52?
15. Convert the angle to degree measure. (Round the final answer to 2 decimal places.) A. $\frac{7\pi}{13}$ B. 7	16. Given the $sin\theta = \frac{3}{7}$, and you are in Quadrant II, find the exact values of $cos\theta =$ $tan\theta =$
17. Find the measure of an angle coterminal to the given angle. A. $\frac{5\pi}{8}$ B. -73°	18. Evaluate the following: A. $tan(-570^o)$ B. $cos\frac{7\pi}{2}$
19. The point (16,-30) lies on the terminal side of θ. Find: $sin\theta =$ $cos\theta =$ $tan\theta =$	20. A boy scout spots a tall tree during a hike in the mountains (the tree is perpendicular to the ground). With his compass, he estimates the angle of elevation from the ground to the top of the tree to be 63. If he is standing 24 feet from the base of the tree, how tall is the tree? (Round final answer to 1 decimal place and label appropriately.)
21. Convert the angle 600 to radian measure.	22. Solve:

At 57" from the base of a building you need to look up at 55° to see the top of a building. What is the height of the building?



Solutions:

1.

2.

A) $\tan\frac{\pi}{6} = \frac{\sqrt{3}}{3}$ or $\frac{1}{\sqrt{3}}$

B) $\sec\frac{\pi}{4} = \sqrt{2}$

C) $\cos\frac{\pi}{3} = \frac{1}{2}$

3.

$\sin\theta = \frac{-\sqrt{3}}{2}$

$\cos\theta = \frac{1}{2}$

$\tan\theta = -\sqrt{3}$

$\csc\theta = -\frac{2}{\sqrt{3}}$ or $-\frac{2\sqrt{3}}{3}$

$\sec\theta = 2$

$\cot\theta = -\frac{1}{\sqrt{3}}$ or $-\frac{\sqrt{3}}{3}$

4.

$\sin\theta = \frac{1}{\sqrt{2}}$ or $\frac{\sqrt{2}}{2}$

$\cos\theta = -\frac{1}{\sqrt{2}}$ or $-\frac{\sqrt{2}}{2}$

$\tan\theta = -1$

$\csc\theta = \sqrt{2}$

$\sec\theta = -\sqrt{2}$

$\cot\theta = -1$

5.

$\sin\theta = -\frac{1}{2}$

$\cos\theta = -\frac{\sqrt{3}}{2}$

$\tan\theta = \frac{1}{\sqrt{3}}$ or $\frac{\sqrt{3}}{3}$

$\csc\theta = -2$

$\sec\theta = -\frac{2}{\sqrt{3}}$ or $-\frac{2\sqrt{3}}{3}$

$\cot\theta = \sqrt{3}$

6.

$\sin\theta = 1$

$\cos\theta = 0$

$\tan\theta = und$

$\csc\theta = 1$

$\sec\theta = und$

$\cot\theta = 0$

7.

$\sin\theta = 0$

$\cos\theta = -1$

$\tan\theta = 0$

$\csc\theta = und$

$\sec\theta = -1$

$\cot\theta = und$

8.

$\sin\theta = 0$

$\cos\theta = 1$

$\tan\theta = 0$

$\csc\theta = und$

$\sec\theta = 1$

$\cot\theta = und$

9. 6,-10

10. (x -5-6i)(x-5+6i)

11. $\theta = 45^\circ, 135^\circ$

$\theta = \frac{\pi}{4}, \frac{3\pi}{4}$

12. $\frac{7(x+3)}{x}$

13. 72.8 and 83.2

14. ME=3.94 CI=57.06 to 64.94
Yes it has changed

15.A) $\approx 96.92^\circ$

B) $\approx 401.07^\circ$

16. $\cos\theta = -\frac{\sqrt{40}}{7} = -\frac{2\sqrt{10}}{7}$

$\tan\theta = -\frac{3}{\sqrt{40}} = -\frac{3}{2\sqrt{10}}$

17. A) $\frac{21\pi}{8}$

B) 287°

(Other answers are possible)

18. A) $-\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$

B) 0

19.

$\sin\theta = -\frac{15}{17}$

$\cos\theta = \frac{8}{17}$

$\tan\theta = -\frac{15}{8}$

20. $\approx 47.1\beta$

21. $\frac{10\pi}{3} \approx 10.47 radians$

22. 81.4feet.