

Math 1613 - Trigonometry

Midterm - 2012.02.21

Name: _____

This portion of your awesome midterm has been designated calculator free!

1. Convert $232^{\circ}15'$ to decimal degrees.

2. Convert 134.35° to degrees, minutes and seconds.

3. Convert 125° to radian measure.

4. Complete the following table:

θ deg	0°	30°	45°	60°	90°	120°	135°	150°	180°
θ rad									
$\sin(\theta)$									
$\cos(\theta)$									

5. Solve for β in the following equation: $\sec(2\beta + 28^\circ) = \csc(3\beta + 12^\circ)$

6. Evaluate $\cos(2040^\circ)$.

7. Find the exact value of $\cos\left(-\frac{5}{6}\pi\right)$.

8. Find the area of a the sector of a circle with radius $r = 3$ cm and central angle $\theta = \frac{3}{5}\pi$.

9. Sketch the graph of $f(x) = -2 + 3 \cos\left(3x + \frac{\pi}{3}\right)$ through two whole periods.

10. Sketch the graph of $g(x) = 2 - \csc\left(\frac{x}{2} + \pi\right)$ through two whole periods.

Math 1613 - Trigonometry

Midterm - 2012.02.21

Name: _____

This portion of your awesome midterm has been designated pro-calculator!

11. A scared trig student runs out of the Math building on a bearing of 32° at a full sprint of 5 miles per hour (said student is out of shape). After 30 minutes, the student has calmed down enough to get their bearing and head back to their apartment. To do so, they stop, and take off on a bearing of 122° for an hour at a pace of 2 miles per hour. How far is it from the Math building to the scared little students apartment?

12. Being a clever trig student, you decide to put your awesome knowledge to use in an attempt to measure the height of the math building. It is a cloudy day, so shadows are not of any help. Instead, you decide to measure the angle of elevation to the top of a building from a point on the ground and determined it to be 34.4° . You then proceed to step back 12 feet and measure the angle of elevation again, with it being 28.7° . How tall is the Math building.

13. The next day, the sun is shining brightly. Close to noon, you drag your 6 ft tall favorite math professor outside, and measure his shadow, which happens to be 2 feet long. The math building's shadow, at this time, happens to be 11 feet long. How tall is the Math building?

14. How do your answers from problems 12 and 13 compare?