Math 1330 Test 2 Review

Where: CASA – Look in your confirmation email

Time: 50 minutes

Questions: Approximately 13 Multiple Choice + 2 or 3 Free Response = Total 14 or 15.

Points: --??-- for Multiple Choice part (appears in your CASA Grade Book after you submit your test in CASA testing center) + --??-- Free Response (posted later in a separate column named Test 2 (FR)) = Total 100

What is covered? 4.1, 4.2, 4.3 and 4.4

What to bring? Cougar card

Make up Policy: NO MAKE-UPS!
Plan to be at the testing center 10-15 minutes before your scheduled time.
If you are late, then try to reschedule through your CASA account.
If you miss your test, you will get a zero for the test. Your Final exam score will replace ONE lowest score test grade.
No calculators allowed during the test!

**How to study? 1) Make sure you understand the material covered on Chapter 4 videos.
2) Solve ALL problems on this review sheet. 3) Take practice test 2 BEFORE your test.** It is for practice AND extra credit. 5% of your best score will be added to your Test 2 score.
RETAKE PT 2 multiple times for more practice.
Know how to write COMPLETE answers to free response problems. NO skipping steps!

1. Convert the following degree measures to radians.
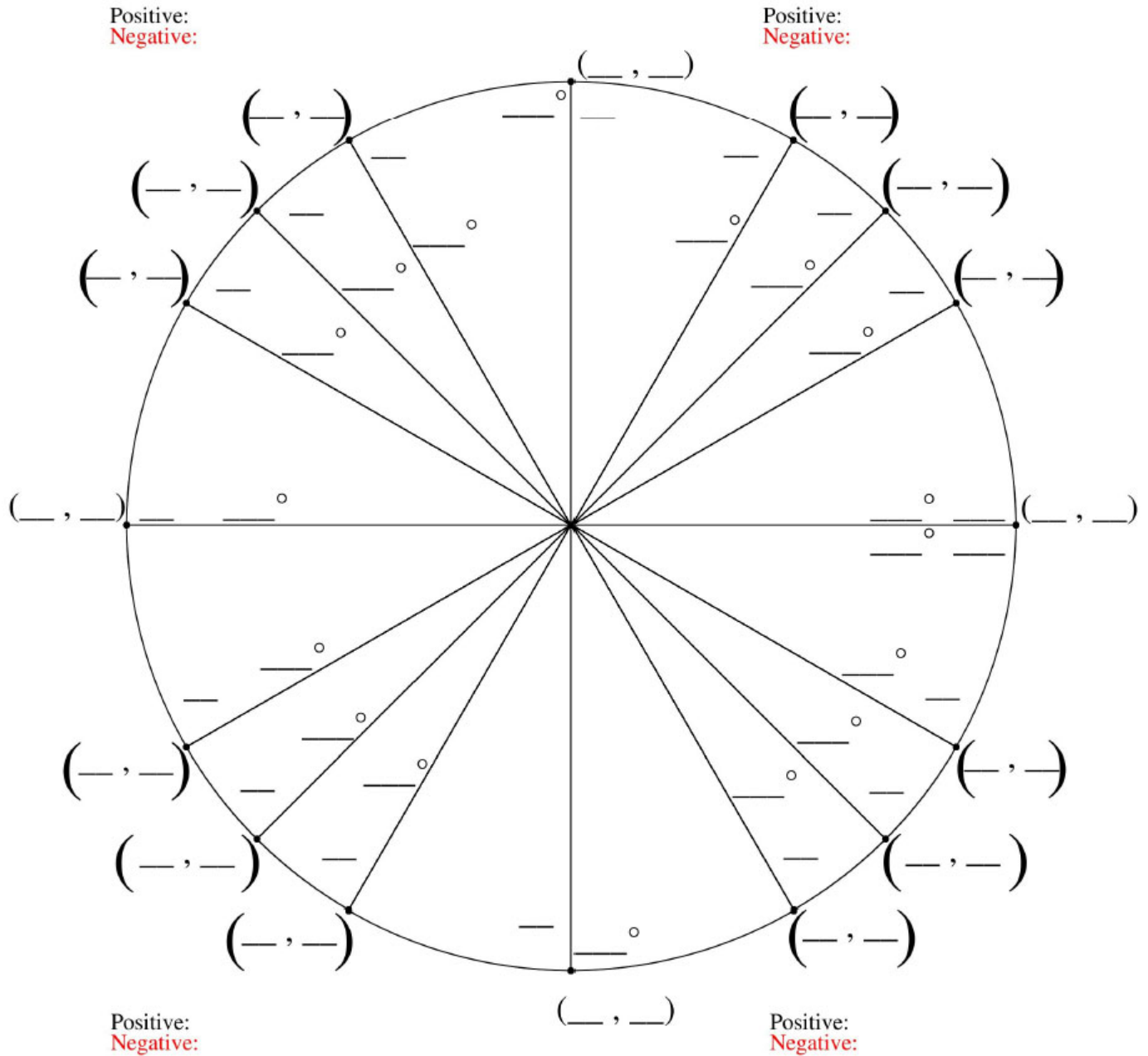   a. $120°$
   b. $225°$

2. Convert the following radian measures to degrees.
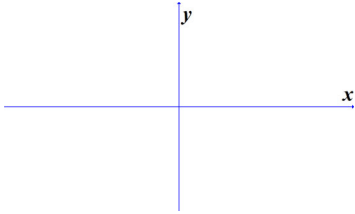   a. $\dfrac{5\pi}{6}$
   b. $\dfrac{61\pi}{36}$

Dr. Almus

KNOW YOUR UNIT CIRCLE!

Unit circle will not be provided; make sure you know it!

Dr. Almus
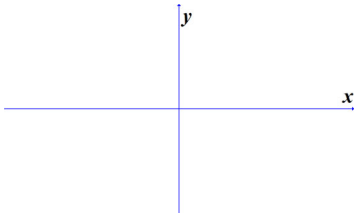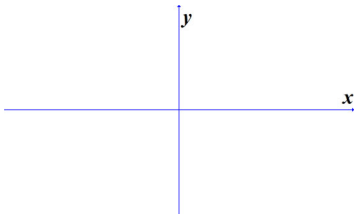
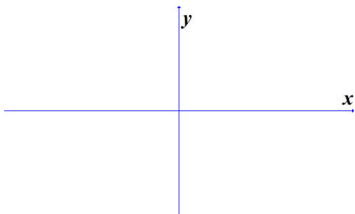3. Evaluate the following if possible.

   a. $\sin(300°)$

   b. $\tan\left(\frac{3\pi}{4}\right)$

   c. $\sec(150°)$

   d. $\csc\left(\frac{-2\pi}{3}\right)$

4. Mark all expressions that are undefined ("not a real number"):

$$\sin(180^0) \qquad\qquad \cos(90^0)$$

$$\cot\left(\frac{\pi}{2}\right) \qquad\qquad \tan(90^0)$$

$$\tan\left(\frac{3\pi}{2}\right) \qquad\qquad \cot(180^0)$$

5. A car has wheels with a 10-inch radius. If each wheel's rate of turn is 4 revolutions per second, how fast is the car moving in units of inches/sec?

6. Find the area of the sector of a circle with central angle
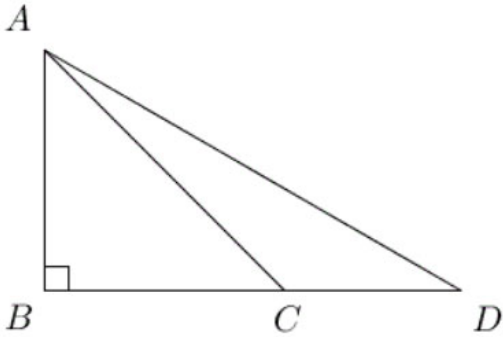   a. $\theta = 225°$ and radius $r = 4\,ft$.
   b. $\theta = \frac{5\pi}{3}$ and radius $r = 30\,in$.

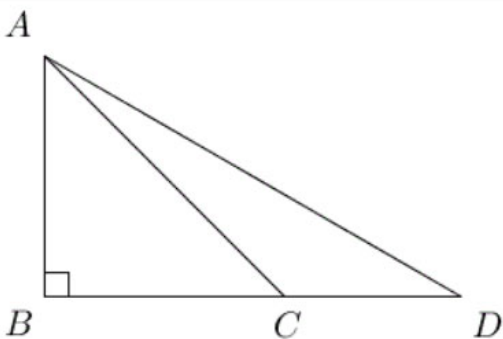Recall: $A = \frac{1}{2}r^2\theta$, θ is in radians!

Dr. Almus

KNOW YOUR SPECIAL TRIANGLES! $30° − 60° − 90°$ $45° − 45° − 90°$

7.
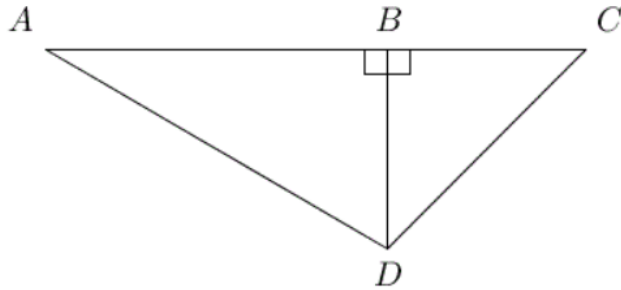
a. In the figure below, angle B is a right angle, $m(D) = 30°$ and $m(ACB) = 60°$. If $AC = 8$, find the length of AD.

A

B   C   D

b. In the figure below, angle B is a right angle, $m(D) = 45°$ and $m(ACB) = 60°$. If $AC = 10$, find the length of AD.

A

B   C   D

Dr. Almus

c. In the figure below, segment BD is an altitude in triangle ADC, $m(A) = 30°$ and $m(C) = 45°$. If $CD = 20$, find the lengths of AB and AD.

Dr. Almus

KNOW TRIANGLE FACTS!
- The **sum of the three angles** of a triangle add up to $180°$.

- **If one side of a triangle is longer** than another **side**, then the angle opposite the **longer side** will have a **greater** degree measure than the angle opposite the **shorter side**.

- Pythagorean theorem: $a^2 + b^2 = c^2$

8. In tringle ABC, the sides have length 8, 15 and 17. If A is the smallest angle, find cos(A) and tan(A).

9. Given a triangle ABC with right angle C, $AC = 6$ and $AB = 9$. Find all six trigonometric functions of angle A.

Dr. Almus

10. Let $P(x, y)$ denote the point where the terminal side of an angle θ meets the unit circle. If P is in Quadrant IV and $x = \frac{4}{5}$, evaluate the six trigonometric functions of θ.

Dr. Almus
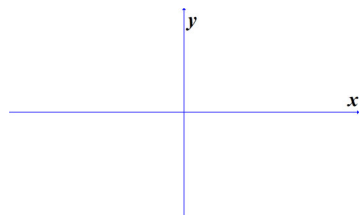
11. a) Given $\cos\theta = -\dfrac{4}{5}$ and $\tan\theta > 0$, find $\csc\theta$.

b) Given $\sin\theta = -\dfrac{1}{4}$ and $\tan\theta < 0$, find $\cos\theta$.

Dr. Almus

12. Simplify the following expressions:

$$5\sin^2 x + 5\cos^2 x + (1 + \tan^2 x)$$

$$2\sec x \cot x + 2\csc x \tan x$$

$$5\sin x \csc x - 2\cos x \sec x$$

$$\frac{4\tan x \cot x}{2\sin^2 x + 2\cos^2 x}$$

Dr. Almus

13. Simplify: $\dfrac{\sqrt{9+9\tan^{2}(x)}}{4\sec^{2}(x)-4}$

Dr. Almus