

Classwork 14

Intermediate Algebra MTH 35

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April 13th 2015

Topic: Modeling with Exponential and Logarithmic functions

Name: _____

1. A certain bacteria population doubles every 4 hours. Initially there are 2000 bacteria in a colony.
 - (a) Find a model for the bacteria population after t hours.
 - (b) How many bacteria are in colony after 15 hours ?
 - (c) When will the bacteria count reach a million ?

2. In a particularly bad zombie outbreak in Freaktown, the population of zombies was 100,000 in 2050, and 300,000 in 2055. Assuming that the zombie population grows exponentially,
 - (a) Find a function that models the zombie population t years after 2050.
 - (b) Find the time require for the population to double.
 - (c) Predict the zombie population in 2075.

3. The half-life of strontium-90 is 28 years. How long will it take a 50-mg sample to decay to a mass of 32 mg.

4. After 3 days, a sample of radon-222 has decayed to 58% of its original amount.

(a) What is the half-life of radon-222 ?

(b) How long will it take the sample to decay to 20 % of its original amount ?

Classwork 15
Intermediate Algebra MTH 35
Topic: Unit Circle Trigonometry

Name: _____

1. Convert from degree to radians.

(a) $270^\circ =$ _____

(b) $120^\circ =$ _____

(c) $-120^\circ =$ _____

(d) $-135^\circ =$ _____

(e) $480^\circ =$ _____

(f) $540^\circ =$ _____

2. Convert from radians to degrees.

(a) $\pi/4 =$ _____

(b) $3\pi/2 =$ _____

(c) $-5\pi/6 =$ _____

(d) $-4\pi/3 =$ _____

(e) $8\pi/3 =$ _____

(f) $-3\pi/2 =$ _____

3. Using the figures below, find the terminal point on the unit circle determined by the real numbers:

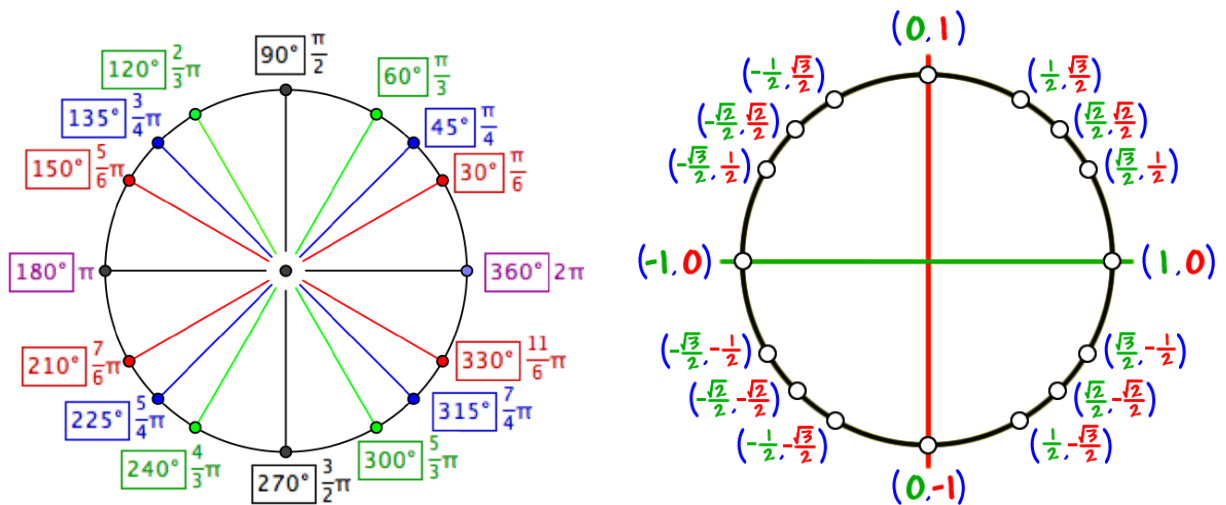
(a) $t = -\pi/4$

(b) $t = 5\pi/6$

(c) $t = -5\pi/3$

(d) $t = 8\pi/3$

(e) $t = 5\pi/4$



Classwork 16
Intermediate Algebra MTH 35
Topic: Unit Circle Trigonometry

Name: _____

1. Find the co-ordinates of the point $P(x, y)$ if

(a) if P is in the second quadrant and the y-coordinate is $1/3$.

(b) if P is in the third quadrant and the x-coordinate is $-3/4$.

2. If $\cos t = 1/3$ and t is in quadrant IV, find the values of all the trigonometric functions at t .

3. If $\sin t = 2/5$ and t is in quadrant I, find the values of all the trigonometric functions at t .

4. If $\sin t = -4/7$ and t is in quadrant III, find the values of all the trigonometric functions at t .