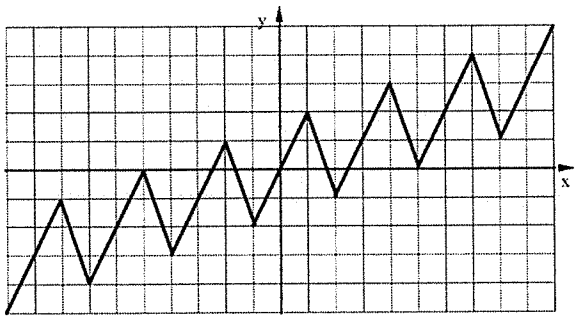
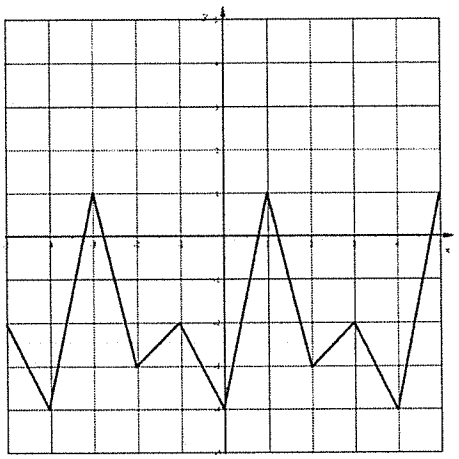
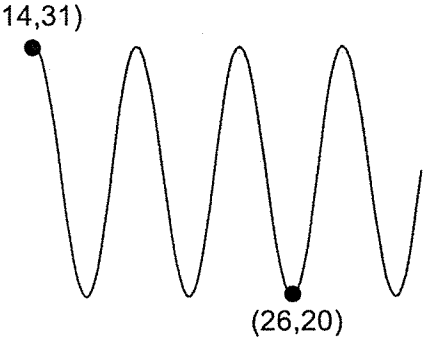
Alg 2 Quiz #3 Review Sec 13-1 to 13-3 and 14-3 Spring 2019

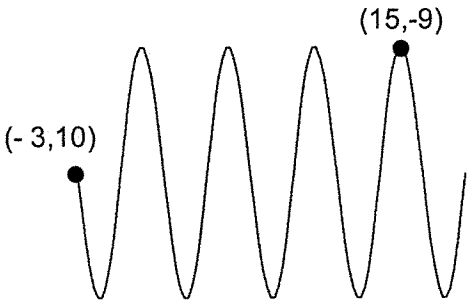
1. State if each function is periodic. If yes, state the amplitude, period, and eq for midline

a) 

b) 

2. Find the Period, Amplitude, and Eq of the Midline for each periodic function.

a) 

b) 

3. Convert angles measured in degrees to radians (leave in terms of π and reduce) and angles measured in radians to degrees (round to nearest tenth if necessary)

a. $\frac{9\pi}{20}$ b. $\frac{7\pi}{12}$ c. $\frac{33\pi}{25}$ d. $280°$ e. $405°$ f. $570°$

4. For each given angle find both a positive and a negative coterminal angle. Leave answers in the same units (degree/radians) as the given angles.

a. $390°$ b. $\frac{2\pi}{3}$ c. $-110°$ d. $-\frac{7\pi}{6}$ e. $950°$

f. $\frac{25\pi}{6}$ g. $-1820°$ h. $-\frac{31\pi}{4}$ i. $3610°$ j. $\frac{56\pi}{9}$

5. Find an angle between $0°$ and $360°$ if in degrees, or between 0 and 2π if in radians, that is coterminal to the given angle. Leave answers in the same units (degree/radians) as the given angles.

a. $410°$ b. 17π c. $-815°$ d. $\frac{14\pi}{3}$ e. $1075°$

f. $-\frac{19\pi}{6}$ g. $-2092°$ h. $\frac{44\pi}{13}$ i. $3080°$ j. $-\frac{23\pi}{2}$

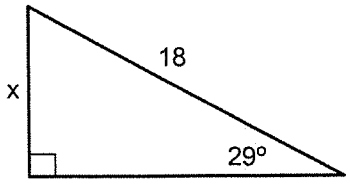
6. State in which quadrant or on which axis the terminal side of each angle is located.

a. $905°$ b. 14π c. $-1060°$ d. $\frac{15\pi}{2}$ e. $1620°$

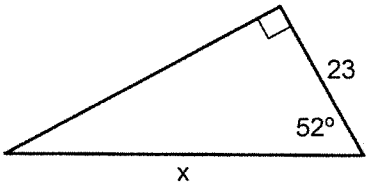
f. $-\frac{16\pi}{7}$ g. $2276°$ h. $-2790°$ i. $-\frac{21\pi}{8}$ j. $\frac{25\pi}{3}$

7. Find the value of x in each to the nearest hundredth.

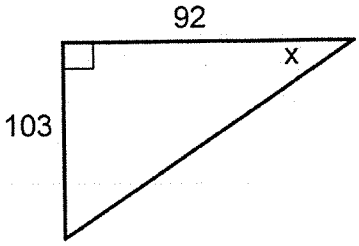
a)



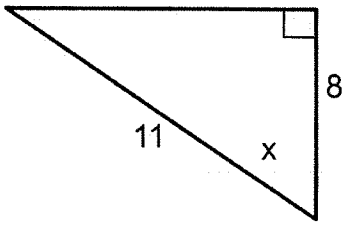
b)



c)

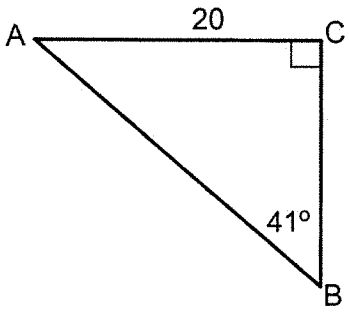


d)

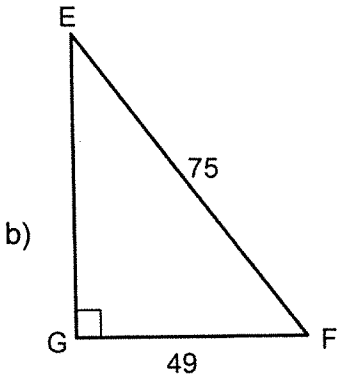


8. Solve each triangle. Round to the nearest tenth.

a)



b)



For 9 to 11, round to the nearest hundredth.

9. You are flying a kite and it get stuck high in a nearby tree. You pull on the string until it is tight but the kite won't come loose. You are 25 feet from the base of the tree and see your kite with an angle of elevation of $68°$. How long is the kite string?

10. You are at the top of a 30 foot long ladder that is leaning against a building just below a window. The ladder makes a $31°$ angle with the building. Your friend is holding the bottom of the ladder to steady it. How far is your friend from the building?

11. You are on the edge of a cliff looking out over the water. You see a boat on the water with an angle of depression of $3°$. If you are 25 above the water, how far away is the boat from the cliff?

Quiz #3 Review Alg 2 Sec 13-1 to 13-3 Spring 2019 ANSWERS

1. a) Not Periodic b) Periodic. Amp= 2.5, Period= 4, Midline: $y = -1.5$

2. a) Period = $\frac{24}{5}$ Amplitude = 5.5 Midline: $y = 25.5$

   b) Period = $\frac{24}{5}$ Amplitude = 19 Midline: $y = 10$

3. a. $81°$ b. $105°$ c. $237.6°$ d. $\frac{14\pi}{9}$ e. $\frac{9\pi}{4}$ f. $\frac{19\pi}{6}$

4. There are an infinite number of answers possible for problems 3 and 4, only a few are given.

a. POS: $30°, 750°, 1110°, \ldots$ NEG: $\ldots, -1050°, -690°, -330°$

b. POS: $\frac{8\pi}{3}, \frac{14\pi}{3}, \frac{20\pi}{3}, \ldots$ NEG: $-\frac{4\pi}{3}, -\frac{10\pi}{3}, -\frac{16\pi}{3}, \ldots$

c. POS: $250°, 610°, 970°, \ldots$ NEG: $\ldots -1190°, -830°, -470°.$

d. POS: $\frac{5\pi}{6}, \frac{17\pi}{6}, \frac{29\pi}{6}, \ldots$ NEG: $\ldots -\frac{43\pi}{6}, -\frac{31\pi}{6}, -\frac{19\pi}{6},$

e. POS: $230°, 590°, 1310°, 1670° \ldots$ NEG: $\ldots -850°, -490°, -130°$

f. POS: $\frac{\pi}{6}, \frac{13\pi}{6}, \ldots, \frac{37\pi}{6}, \frac{49\pi}{6}, \ldots$ NEG: $\ldots -\frac{35\pi}{6}, -\frac{23\pi}{6}, -\frac{11\pi}{6}$

g. POS: $340°, 700°, 1060 \ldots$ NEG: $\ldots, -2540°, -2180°, \ldots, -1460°, -1100°, \ldots$

h. POS: $\frac{\pi}{4}, \frac{9\pi}{4}, \frac{17\pi}{4}, \ldots$ NEG: $\ldots, -\frac{47\pi}{4}, -\frac{39\pi}{4}, \ldots, -\frac{23\pi}{4}, -\frac{15\pi}{4}, \ldots$

i. POS: $\ldots, 2890°, 3250°, \ldots, 3970°, 4330°, \ldots$ NEG: $\ldots, -1070°, -710°, -350°$

j. POS: $\ldots, \frac{20\pi}{9}, \frac{38\pi}{9}, \ldots, \frac{74\pi}{9}, \frac{92\pi}{9}, \ldots$ NEG: $\ldots, -\frac{52\pi}{9}, -\frac{34\pi}{9}, -\frac{16\pi}{9}$

5. a. $50°$ b. π c. $265°$ d. $\frac{2\pi}{3}$ e. $355°$

f. $\frac{5\pi}{6}$ g. $68°$ h. $\frac{18\pi}{13}$ i. $200°$ j. $\frac{\pi}{2}$

6. a. Quadrant *III* b. Pos x-axis c. Quadrant *I* d. Neg y-axis

e. Neg x-axis f. Quadrant *IV* g. Quadrant *II* h. Pos y-axis

i. Quadrant *III* j. Quadrant *I*

7. a) $x = 8.73$ b) $x = 37.36$ c) $x = 48.23°$ d) $x = 43.34°$

8. a) $\angle A = 49°$ $AB = 30.5$ $BC = 23.0$

b) $EG = 56.8$ $\angle E = 40.8°$ $\angle F = 49.2°$

9. 66.74 ft 10. 15.45 ft 11. 477.03 ft