Algebra 2

1. 
$$(x^2 - 3x^4 + 5x - 1) + (8 - 2x^4 + 7x^3)$$
  
2.  $(7x^5 - 3x^2 + 2x) - (8x + 1 - 4x^2)$ 

3.  $(x^2 - 3x + 4)(2x - 3)$ 4.  $(x^5 + 6x^4 + 3x^2 + 27x + 64) \div (x + 6)$ 

For #5-6, state the end behavior.

5. 
$$f(x) = x^{14} - 3x^7 + 6x - 4$$
6.  $f(x) = -x^7 + 3x - 4$ As  $x \rightarrow +\infty$ ,  $f(x) \rightarrow \_$ As  $x \rightarrow +\infty$ ,  $f(x) \rightarrow \_$ As  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \_$ As  $x \rightarrow -\infty$ ,  $f(x) \rightarrow \_$ 

Factor:

7. 
$$2x^3 - 2x = 0$$
  
8.  $5x^2 - 5x - 30 = 0$ 

9. 
$$x^2 - 169 = 0$$
  
10.  $X^3 - 5x^2 + 3x - 15 = 0$ 

Graph:



12. Convert the following to radian angle measures; leave your answer in terms of  $\pi$ , simplify all fractions.

a. 270°

**c**. 67°

b. 225°

13. Convert the following to degrees, round to the nearest tenth of a degree.

d.  $\frac{\pi}{4}$ e.  $\frac{5\pi}{8}$ 

## 14.Use the equation below to answer the following questions.

$$y = \frac{4}{2}\cos\left(\frac{1}{4}x\right) + 3$$

- a. Determine the amplitude of the function. How is it related to the equation?
- b. Determine the period of the function. How is it related to the equation?
- c. Determine the midline of the function. How is it related to the equation?
- d. Find the domain of the function.
- e. Find the range of the function.
- f. Graph at least 2 cycles of the function.



15. Find sinx and tanx if  $\cos x = \frac{2}{3}$  and angle x is in quadrant IV.

17. Make a box and whisker graph to represent the data:



18. Use the graph to find the mean, median, and mode.



19. Use normal distribution to solve. The price of a gallon of gas at 75 gas stations has a mean of \$2.05 and a standard deviation of 4 cents. <u>What percent of gas stations</u> sell a gallon of gas for less than \$1.97? <u>How many gas stations</u> sell a gallon of gas for less than \$1.97?



20. Use the table below to calculate probability.

EYE COLOR	Black	Brown	Blue	Green	Gray	Total
Female	20	30	10	15	10	85
Male	25	15	12	20	10	82
Total	45	45	22	35	20	167

P(brown) =	P(male and green) =
P(female or blue) =	P(greyImale) =
P(blue or green) =	P(female and grey) =

## 21. Graph the function: $f(x) = 2\log_3 x - 1$ .



g.  $\frac{\pi}{4}$ h.  $\pi$ i.  $\frac{\pi}{3}$