Name: _____ Date: _____ **Unit 6 Class Work**

Polynomial Division Class Work

Objective: *You will be able to divide polynomial expressions.*

Quick Review: Divide using long division.

a. $1328 \div 8$

b. $23590 \div 18$

We can also divide polynomials using long division!

Guided Example: $x^5 - 3x^3 + 5x^2 - 10x - 20 \div (x - 5)$

***Check your work by multiplying!**

***If the remainder is zero, the divisor is a factor of the polynomial.**

Practice: Divide each pair of polynomials using long division.

1. $3r^4 + 6r^3 - 8r + 12 \div (r + 2)$

2. $6s^4 + 21s^3 - 9s^2 - 21s + 3 \div (s^2 - 1)$

3. $12m^5 - 6m^4 + 3m^3 - 9x^2 - x + 3 \div (m - 3)$

4. $2b^4 + 5b^2 - 22b + 15 \div (b - 1)$

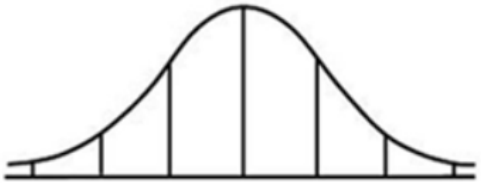
***The polynomial $m(x) = 2x^3 + 13x^2 + 17x - 12$ has $x + 4$ as a factor. Factor the polynomial completely. State the x-intercepts and y-intercepts of the graph of m(x).**

Polynomial Long Division Homework: pages 318 – 319 #1, 3, 7, 9, 11, 37, and 43
*Check your answers with the back of the book! ☺

Throwback!

1. Determine f(-7), f(0), and f(24) for the function f(x) = ¾x – 4.

2. A sample survey shows that the average number of hours elliptical users stay on the elliptical for consistently is 0.85 hours, with a standard deviation of 0.15 hours.



Part A: Appropriately label μ, $\pm 1\sigma$, $\pm 2\sigma$, and $\pm 3\sigma$ on the normal distribution curve.

Part B: Describe the interval of time that you would expect 68% of people to stay on the elliptical for.

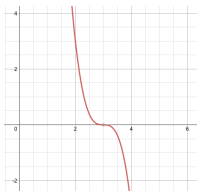
Part C: Approximately what percent of people stay on the elliptical for more than 1.3 hours?

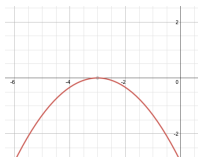
a. 0.15% b. 2.5% c. 3% d. 99.7%

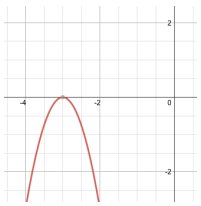
Part D: If 150 people used the elliptical, how many people would you expect to have stayed on the machine for less than a full hour?

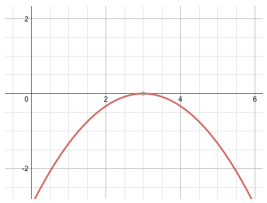
a. 75 b. 84 c. 123 d. 126

3. Which is the most accurate graph for the function $f(x) = -3(x+3)^2$

a. 

b. 

c. 

d. 

Name: _____ Date: _____ **Unit 6 Class Work**

Polynomial Division Class Work

Objective: *You will be able to divide polynomial expressions.*

★ Synthetic Division:

Guided Example: $x^3 - 10x^2 + 5x + 20 \div (x - 5)$

*Always use the value that would cause the divisor to be zero.

*If a is the zero of the binomial divisor, to check your work, the remainder should be equal to f(a).

Practice: Divide each pair of polynomials using synthetic division.

1. $3r^3 - 2r^2 - 22r + 3 \div (r - 3)$

2. $x^4 + 8x^3 + 4x^2 + 28 \div (x + 2)$

3. $2w^7 - w^6 - w^3 + 2w^2 \div (w + 1)$

4. $8x^6 - 62x^5 - 16x^4 - 3x^3 + 24x^2 \div (x - 8)$

5. $20x^4 + 4x^3 - 15x^2 + 22x - 9 \div (2x - 1)$

- Create any binomial with leading coefficient 1. Call this polynomial A.

- Create any polynomial that has 4 or more terms and degree of at least 3. Call this polynomial B.

- Multiply polynomials A and B. Call the product polynomial C.

- On a blank sheet of paper write a division problem as follows:

Polynomial C ÷ Polynomial A

- Switch with a partner, solve, and check! ☺

Polynomial Synthetic Division Homework: pages 318 – 319 #15, 17, 19, 21, 39, 41, 45, & 47

*Check your answers with the back of the book! ☺

Throwback!

1. Factor $xz - xy^2z$ completely.
2. Determine one value of v that satisfies the equation:

$$v^2 - 10v + 8 = (v - 2)^2 + 1$$

3. Simplify: $(7i + 8) - i(3 - 2i)$