

“We aim above the mark to hit the mark”- Ralph Waldo Emerson

Block: _____

Tuesday: Factor the following:

1. Factor: $x^2 - 36$
 2. Factor: $16x^2 - 49$
 3. Factor by grouping: $12x^3 + 4x^2 + 3x + 1$
 4. Factor by grouping: $12x^3 - 9x^2 + 4x - 3$
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Tuesday:

1. Divide the following using long division:
 $(2x^3 + 13x^2 + 10x - 25) \div (x + 5)$
2. Divide the following using long division:
 $(5x^3 + 13x^2 + 6x - 2) \div (x + 1)$
3. Divide the following using synthetic division:
 $(6x^3 - 7x^2 - 17x - 14) \div (x - 2)$
4. Divide the following using synthetic division:
 $(x^3 + 5x^2 - 9) \div (x + 2)$
5. Divide the following using synthetic division:
 $(2x^4 + 5x^2 - 8) \div (x + 1)$

Evaluate the following:

$$f(x) = \begin{cases} -2x, & x < 0 \\ 3x^2 - 4x, & 0 \leq x \leq 5 \\ -2x + 7, & x > 5 \end{cases}$$

1. Evaluate: $f(-5)$

2. Evaluate: $f(9)$

3. Evaluate: $f(5)$

4. Evaluate: $2f(-4) + f(6)$

Thursday: Add or Subtract.

1. $\frac{2}{x-2} + \frac{6}{x+3}$

2. $\frac{5x}{(x+2)} - \frac{7x}{(x+4)}$

3. $\frac{2x}{x^2-36} + \frac{3}{x-6}$

4. $\frac{6}{x+1} + \frac{4x}{x^2-1}$

5. $\frac{7x}{x+5} - \frac{10}{x^2+8x+15}$