

Today's Plan:

Learning Target (standard): I will factor GCF's out of polynomial expressions.

Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

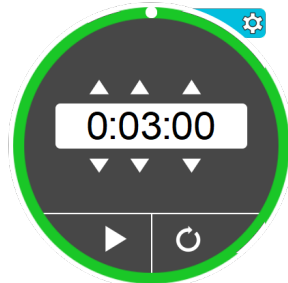
Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME _____

BELL RINGER



1.) Solve $5x - 3 = 12$.

$$\frac{5x}{5} = \frac{15}{5}$$

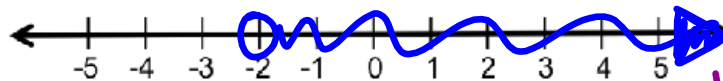
$$x = 3$$

2.) Solve $\frac{x-3}{18} = \frac{1}{2}$

$$x - 3 = 9$$

$$x = 12$$

3.) Graph $x > -2$. Write the solution as a set and interval.



$$\{x \mid x > -2\}$$

$$(-2, \infty)$$

Simplify.

$$(\underline{-2x} + \underline{3})(4x^2 - x + 5)$$

$$-2x(4x^2 - x + 5) + 3(4x^2 - x + 5)$$

$$-8x^3 + \underline{2x^2} - \underline{10x} + \underline{12x^2} - \underline{3x} + 15$$

$$-8x^3 + 14x^2 - 13x + 15$$

Simplify.

$$(\underline{3x} - \underline{y})(2x^2 + xy - y^2)$$

$$3x(2x^2 + xy - y^2) - y(2x^2 + xy - y^2)$$

$$6x^3 + \underline{3x^2y} - \underline{3xy^2} - \underline{2x^2y} - \underline{xy^2} + y^3$$

$$6x^3 + x^2y - 4xy^2 + y^3$$

Simplify.

$$(2x - 5)^2$$

$$(\underline{2x-5})(\underline{2x-5})$$

$$2x(2x-5) - 5(2x-5)$$

$$4x^2 - \underline{10x} - \underline{10x} + 25$$

$$4x^2 - 20x + 25$$

Simplify.

$$(-3a^2bc^4)^2 (2ab^3c)^3$$

$$\boxed{(-3)^2} a^4 b^2 c^8 \cdot \boxed{2^3} a^3 b^9 c^3$$

$$9 \underline{a^4} \underline{b^2} \underline{c^8} \cdot 8 \underline{a^3} \underline{b^9} \underline{c^3}$$

$$72a^7b^{11}c^{11}$$

Simplify.

$$(4x^2y^3z^3)^2(-3xyz^4)^2$$

$$\underline{16}x^4\underline{y^6}\underline{z^6} \cdot \underline{9}x^2\underline{y^2}\underline{z^8}$$

$$144x^6y^8z^{14}$$

Monomial Factors of Polynomials:

- when dividing a polynomial by a monomial
 - separate each term in the polynomial by dividing it by the monomial
 - reduce each term

$$\frac{x^m}{x^n} = x^{m-n}$$

$$\frac{x^5}{x^2} = \frac{\cancel{x \cdot x \cdot x \cdot x \cdot x}}{\cancel{x \cdot x}} = x^3$$

$$\frac{x^5}{x^2} = x^{5-2} = x^3$$

Simplify.

$$\frac{6a+9}{3} = \frac{\overset{2}{\cancel{6}}a}{\cancel{3}1} + \frac{\overset{3}{\cancel{9}}}{\cancel{3}1}$$
$$= 2a + 3$$

Simplify.

$$\frac{10z^2 - 15z - 20}{5} = \frac{\overset{2}{\cancel{10}}z^2}{\cancel{5}1} - \frac{\overset{3}{\cancel{15}}z}{\cancel{5}1} - \frac{\cancel{20}}{\cancel{5}5}$$
$$= 2z^2 - 3z - 4$$

Simplify.

$$\frac{33y^4 + 11y^3 - 44y^2}{11y^2} = \frac{33y^4}{11y^2} + \frac{11y^3}{11y^2} - \frac{44y^2}{11y^2}$$

$$= \frac{\overset{3}{\cancel{33}}y \cdot \cancel{y} \cdot \cancel{y} \cdot \cancel{y}}{\cancel{11}y \cdot \cancel{y}} + \frac{\cancel{11}y \cdot \cancel{y} \cdot \cancel{y}}{\cancel{11}y \cdot \cancel{y}} - \frac{\overset{4}{\cancel{44}}y \cdot \cancel{y}}{\cancel{11}y \cdot \cancel{y}}$$

$$= 3y^2 + y - 4$$

Monomial Factors of Polynomials:

- when factoring out a common monomial
 - write in descending order
 - find the GCF of each term "greatest common factor"
 - GCF is the biggest # and smallest exponent that divides into each term
 - If the first term is negative, the GCF will be negative
 - factor (opposite of distribute) out the GCF
 - Factored Form: GCF(quotient)

$$\frac{2x-10}{\underline{2} \quad \underline{2}} \quad \text{GCF: } 2$$

$$2(x-5)$$

Factor.

$$\frac{15a}{5} - \frac{25b}{5} + \frac{20}{5}$$

GCF: 5

$$5(3a - 5b + 4)$$

GCF quotient

Factor.

$$\frac{7y^3}{7y} - \frac{21y^2}{7y} - \frac{14y}{7y}$$

GCF: $7y$

$$7y(y^2 - 3y - 2)$$

Factor.

$$5ax^2 + 10a^2x - 15a^3$$

$$\text{GCF: } -5a$$

$$\frac{-15a^3}{-5a} + \frac{10a^2x}{-5a} + \frac{5ax^2}{-5a}$$

$$-5a(3a^2 - 2ax - x^2)$$

Factor.

$$-14k^2 - 35k + 14$$

$$\frac{-14k^2}{-7} - \frac{35k}{-7} + \frac{14}{-7} \quad \text{GCF: } -7$$

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$$-7(2k^2 + 5k - 2)$$

Factor.

$$-32nm^4 - 64nm - 72n$$

$$\frac{-32m^4n}{-8n} - \frac{64mn}{-8n} - \frac{72n}{-8n} \quad \text{GCF: } -8n$$

$$-8n(4m^4 + 8m + 9)$$

Factor.

$$20b^6a^2 + 14b^5 + 12b^4$$

$$\frac{20a^2b^6}{2b^4} + \frac{14b^5}{2b^4} + \frac{12b^4}{2b^4} \quad \text{GCF: } 2b^4$$

$$2b^4(10a^2b^2 + 7b + 6)$$

Factor.

$$-5m^5n^3 - 3m^7n + 6m^6n + m^5n^2$$

$$\frac{-3m^7n}{-m^5n} + \frac{6m^6n}{-m^5n} - \frac{5m^5n^3}{-m^5n} + \frac{m^5n^2}{-m^5n}$$

GCF: $-m^5n$

$$-m^5n(3m^2 - 6m + 5n^2 - n)$$

Assignment:

GCF Factoring ①

#1-10