

Warm Up:

Simplify:

1. $(24x^4 - 8x^3 + 4x^2) \div 4x^2$

$$6x^2 - 2x + 1$$

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

$$10x^3 - 20x^2 + 5x + 14x^2 - 28x + 7$$

$$10x^3 - 6x^2 - 23x + 7$$

Collect Journals

-staple rubric on top

-make sure your name is on the rubric!

What is GCF? greatest common factor

What is the GCF of 6 & 8? 2

(Factors of 6 1 2 3 6; Factors of 8 1 2 4 8)

What is the GCF of x^4 and x^3 ? x^3

(Factors of x^4 $x \cdot x \cdot x \cdot x$; Factors of x^3 $x \cdot x \cdot x$)

What is the GCF of a^2b^5 and a^3b ? a^2b

(Factors of a^2b^5 $a \cdot a \cdot b \cdot b \cdot b \cdot b \cdot b$; Factors of a^3b $a \cdot a \cdot a \cdot b$)

Do you notice any tricks that can help you find the GCF of variables? Smallest exponent for each variable

Find the GCF of....

$$6x \text{ and } 8x \quad \underline{2x}$$

$$4x^2 \text{ and } 8x^2 \quad \underline{4x^2}$$

$$27x \text{ and } 18 \quad \underline{9}$$

$$10ab^3c^2, 15a^3b^2c^4, \text{ and } 20a^3c^3 \quad \underline{5a c^2}$$

$$14f^3g^2h^4, 28f^2g^6h, \text{ and } 21f^4gh \quad \underline{7f^2gh}$$

$$15x^6y^3z^2, 7x^8y^4z^5, \text{ and } 16x^5y^6z^2 \quad \underline{x^5y^3z^2}$$

So, when we FACTOR a polynomial, we look for the GCF first. However we need to show what is left over also. Think of this as "backwards distributing."

$$2(x^2 + 4) = 2x^2 + 8$$

$$\frac{3x^2 + 6x}{3x}$$

Factor: $3x^2 + 6x$

Find the GCF: $3x$

What is left over when you divide it out? $x + 2$

Write them together: $3x(x + 2)$ ★

How can we check?

$$3x^2 + 6x$$

Factor $12a^2b^3c - 16ab^2c^3 + 4ab^2c$

$$\frac{4ab^2c}{4ab^2c}$$

$$4ab^2c(3ab - 4c^2 + 1)$$

Factor $8x^3 + 6x^2 - 7x$

Factor $4x - 7y$

$$7x^3 + 14x^2 + 5x$$
$$x(7x^2 + 14x + 5)$$

$$20x^3y^2 + 5x^2y^2$$
$$5x^2y^2(4x + 1)$$

$$10a^2b^4c - 20a^3b^3c^2 + 5abc^3$$

$$5abc(2ab^3 - 4a^2b^2c + c^2)$$

Factor:

1. $81x^2 - 27x$

$27x(3x-1)$

2. $49a^4b^2 - 14a^3b + 7ab$

$7ab(7a^3b - 2a^2 + 1)$ prime

3. $25x + 3$

4. $24x^2y^3 - 8xy^2$

$8xy^2(3xy - 1)$ prime

5. $13x - 3y$

6. $32x^2 - 28x + 8$

$4(8x^2 - 7x + 2)$

7. $6x^3 - 7x^2 + 13x$

$x(6x^2 - 7x + 13)$

8. $56x^4 + 14x^2$

$14x^2(4x^2 + 1)$

9. $20x^2 - 10x + 5$

$5(4x^2 - 2x + 1)$

10. $4x^3 + 4x^2$

$4x^2(x+1)$

11. $16x^3y - 7z + 5$

prime

12. $4x^3 + 6x^2 - 8x$

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

13. $64f^3h^4g + 40f^2g^3 + 24f^3h^2g^2$

8/12

14. $56a^2b^3 - 64a^4b^2 + a^2b^2$

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