

Warm Up:

Factor by finding the GCF.

1. $16x^5y^4 - 8x^2y^3 + 4xy^3$

2. $20x^3 - 10x^2 + 30x$

$$4xy^3(4x^4y - 2x + 1)$$

$$10x(2x^2 - \cancel{1}x + 3)$$

Simplify:

3. $(3x+y)(2x+3y)$

$$6x^2 + 9xy + 2xy + 3y^2$$

$$6x^2 + 11xy + 3y^2$$

Review homework

21. $3(3x - 2)$

22. $t(t + 8)$

23. $7(2n^3 - 5n^2 + 4)$

24. $5(k^3 + 4k^2 - 3)$

25. $2x(7x^2 - x + 4)$

26. $g(g^3 + 24g^2 + 12g + 4)$

Do you see a relationship between the numbers?

$$\begin{array}{ccc} \text{factoring} \swarrow & x^2+8x+15 & \searrow \text{simplifying} \\ & \downarrow & \\ & (x+3)(x+5) & \\ & x^2+5x+3x+15 & \end{array}$$

Factoring Quadratic Trinomials with a leading coefficient of 1

$$ax^2+bx+c$$

\swarrow \uparrow \nwarrow
 1 add to this multiply to this

x^2+5x+6

$(x+2)(x+3)$

$x^2-27x+26$

$(x-1)(x-26)$

$$\begin{array}{cc} -1 & -26 \\ -2 & -13 \end{array}$$

$x^2-3x-18$

$(x+3)(x-6)$

$$x^2+3x-6x-18$$

$$\begin{array}{cc} 1 & 18 \\ 2 & 9 \\ 3 & -6 \end{array}$$

Make sure you check if there is a GCF first!

$$x^3 - 2x^2 + 15x$$

$$x(x^2 - 2x + 15)$$

$$x(x-)(x)$$

$$2x^2 - 14x - 36$$

$$2(x^2 - 7x - 18)$$

$$2(x+2)(x-9)$$

$$2(x-9)(x+2)$$

$$2x^3 + 18x^2 + 16x$$

$$2x(x^2 + 9x + 8)$$

$$2x(x+1)(x+8)$$

1. $x^2 - 16x - 36$

$$(x + 2)(x - 18)$$

2. $x^2 - 13x + 40$

$$(x - 5)(x - 8)$$

3. $x^2 + 47x + 90$

$$(x + 2)(x + 45) \begin{matrix} 1 & 90 \\ 2 & 45 \end{matrix}$$

4. $2x^2 - 2x - 60$

$$2(x + 5)(x - 6)$$

5. $y^2 - 7y - 60$

6. $x^2 + 43x - 82$

7. $3x^3 - 30x^2 - 72x$

8. $x^2 + 38x + 72$

9. $x^2 + 5x - 6$

February 4, 2020

