

9.2 - Multiplying and Factoring GCF

Vocabulary:

Greatest Common Factor

Factor

Distribute

$$15x(x + 2)$$

↑
factor

$$15x^2 + 30x^1$$

$$\begin{array}{ccccccc} 3 & \cdot & 5 & \cdot & x & \cdot & x \\ 2 & \cdot & 3 & \cdot & 5 & \cdot & x \end{array}$$

$$\boxed{15x} \text{ GCF}$$

$3 \cdot 5 \cdot x$

$$\begin{array}{c} 30 \\ | \\ 6 \\ | \\ 2 \quad 3 \end{array}$$

(5)

Find the GCF of the following:

$$12 + 36$$

$$\begin{array}{c} \boxed{12} \\ + \boxed{x^2} \end{array}$$

$$x^4 + x^2$$

$$\begin{array}{c} \boxed{12x^4} + \boxed{36x^2} \\ + \boxed{12x^2} \end{array}$$

$$g^2 \cdot g^3$$

1 EXAMPLE

Simplify $-2g^2(3g^3 + 6g - 5)$.

$$g^2 \cdot g^1 = g^3$$

$$-2g^2(3g^3 + 6g - 5)$$

$$-6g^5 - 12g^3 + 10g^2$$

Simplify:

$$3x^1(x^2 - 4x + 2)$$
$$3x^3 - 12x^2 + 6x$$

2 EXAMPLE

Find the GCF of $\underline{\underline{2x^4}} + \underline{\underline{10x^2}} - \underline{\underline{6x}}$.

A handwritten answer showing the greatest common factor of the expression. The number 2 is written above the variable x, which is enclosed in a hand-drawn purple rectangular box.

$$\boxed{2x}$$

Find the GCF :

$$-12x^3 + 9x^2$$

$$\boxed{3x^2}$$

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

① GCF

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

Factor :

$$-3x^2 + 6x - 36$$

$$3(-x^2 + 2x - 12)$$

Homework: pg. 501

6) $-p^3 + 11p^2$

8) $36y^5 + 32y^4 - 44y^2$

10) $-42q^7 + 14q^3 + 49q^2$

12) $-40x^9 - 12x^8 + 28x^4$

14) $2a$

16) x

18) $3x$

20) $\sqrt{v+4}$

22) $2t^2(1 - 5t^2)$

$2t^2 - 10t^4$

24) $4p^3(p^3 + 4p^2 + 3)$

25) Karla b/c $-2x^{-3}$
 $= 6x$

26) N/A

30) $y^2 + 3y - 5y^2 + 10y$
 $- 4y^2 + 13y$