

Name: _____

Show all work clearly and in order. Please box your answers. 10 minutes.

1. The product
- $(x-2)(x^2+2y)$
- simplifies to which of the following? (Circle one)

A. $x^3 - 2x^2 - 4y$

B. $x^3 - 2x^2 + 2xy - 4y$

C. $x^3 + x^2 - 2xy + 5$

D. $x^3 - 4y^2$

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

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

2. The product
- $4x^3yz^5 \cdot 6y^3z$
- simplifies to which of the following? (Circle one)

A. $12x^3y^4z^6$

B. $24x^3y^3z^5$

C. $12x^3y^3z^5$

D. $24x^3y^4z^6$

$$6 \cdot 4 x^3 y y^3 z^5 z$$

$$24 x^3 y^4 z^6$$

3. Factor:
- $4x^2 + 16x + 15$

SOL 1: Factor by guessing

$$(2x+3)(2x+5)$$

SOL 2: By grouping:

Multiply $ac = 4 \cdot 15 = 60$

Find two factors of 60 that sum to 16: 6 and 10

$4x^2 + 6x + 10x + 15$

$2x(2x+3) + 5(2x+3)$

$$(2x+3)(2x+5)$$

4. Write the following as a single simplified fraction:

$$\frac{5x^3y^2}{2wz^4} \cdot \frac{8w^2y^5}{7x^2z^3} = \frac{40x^3y^7w^2}{14x^2z^7}$$

$$= \frac{20x^4y^7w}{7z^7}$$

5. Write the following as a single simplified fraction:

$$\frac{5}{x-2} - \frac{4x}{x+3}$$

$$= \frac{5(x+3)}{(x-2)(x+3)} - \frac{4x(x-2)}{(x+3)(x-2)}$$

$$= \frac{5(x+3) - 4x(x-2)}{(x-2)(x+3)} = \frac{5x+15 - 4x^2+8x}{(x-2)(x+3)}$$

$$= \frac{-4x^2+13x+15}{(x-2)(x+3)}$$