

HOMWORK: FACTORING

NAME: _____ DAY 2 DUE: _____

Factor completely. If the polynomial cannot be factored, write "PRIME."

<p>1. $\frac{8x^2 - 18}{2}$</p> <p>$2(4x^2 - 9)$</p> <p>$2(2x - 3)(2x + 3)$</p>	<p>2. $x^2 + 100$</p> <p>PRIME!</p>
<p>3. $6x^2 - 11x - 2$</p> <p>$\frac{6x^2 + 1x - 12x - 2}{x \quad -2}$</p> <p>$x(6x + 1) - 2(6x + 1)$</p> <p>$(6x + 1)(x - 2)$</p>	<p>4. $\frac{12x^2 - 22x - 20}{2}$</p> <p>$2(6x^2 - 11x - 10)$</p> <p>$2(6x^2 + 4x - 15x - 10)$</p> <p>$2(2x(3x + 2) - 5(3x + 2))$</p> <p>$2(3x + 2)(2x - 5)$</p>
<p>5. $1 - 4x^2$</p> <p>$(1 - 2x^2)(1 + 2x^2)$</p>	<p>6. $x^4 - 81$</p> <p>$(x^2 - 9)(x^2 + 9)$</p> <p>$(x - 3)(x + 3)(x^2 + 9)$</p>
<p>7. $y^4 + 11y^3 + 30y^2$</p> <p>$y^2(y^2 + 11y + 30)$</p> <p>$y^2(y + 5)(y + 6)$</p>	<p>8. $x^6 - 2x^3 + 1$</p> <p>$(x^3 - 1)(x^3 - 1)$</p> <p>$(x^3 - 1)^2$</p>
<p>9. $1 - 8x^2 - 9x^4$</p> <p>$-9x^4 - 8x^2 + 1$</p> <p>$-(9x^4 + 8x^2 - 1)$</p> <p>$-(9x^4 - 1x^2 + 9x^2 - 1)$</p> <p>$-[x^2(9x^2 - 1) + 1(9x^2 - 1)]$</p> <p>$-(9x^2 - 1)(x^2 + 1)$</p> <p>$-(3x - 1)(3x + 1)(x^2 + 1)$</p>	

Simplify.

10. $(4x-3)^2 + x \cdot 2(4x-3) \cdot 4$

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

$$(4x-3) [(4x-3) + 8x]$$

$$(4x-3)(12x-3)$$

$$(4x-3)(3)(4x-1)$$

$$\boxed{3(4x-3)(4x-1)}$$

11. $\frac{(3x+1) \cdot 2x - x^2 \cdot 3}{(3x+1)^2}$

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

Factor completely.

12. $2(3x+4)^2 + (2x+3) \cdot 2(3x+4) \cdot 3$

$$\frac{2(3x+4)^2}{2(3x+4)} + \frac{6(2x+3)(3x+4)}{2(3x+4)}$$

$$2(3x+4) [(3x+4) + 3(2x+3)]$$

$$2(3x+4)(3x+4 + 6x+9)$$

$$\boxed{2(3x+4)(9x+13)}$$

13. $2x(2x+5) + x^2 \cdot 2$

$$\frac{2x(2x+5)}{2x} + \frac{2x^2}{2x}$$

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

$$\boxed{2x(3x+5)}$$

14. $2(x+3)(x-2)^3 + (x+3)^2 \cdot 3(x-2)^2$

$$\frac{2(x+3)(x-2)^3}{(x+3)(x-2)^2} + \frac{3(x+3)^2(x-2)^2}{(x+3)(x-2)^2}$$

$$(x+3)(x-2)^2 [2(x-2) + 3(x+3)]$$

$$(x+3)(x-2)^2 (2x-4 + 3x+9)$$

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

$$(x+3)(x-2)^2 (5)(x+1)$$

$$\boxed{5(x+3)(x-2)^2(x+1)}$$

15. $(4x-3)^2 + x \cdot 2(4x-3) \cdot 4$

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

$$(4x-3) [(4x-3) + 8x]$$

$$(4x-3)(12x-3)$$

$$(4x-3)(3)(4x-1)$$

$$\boxed{3(4x-3)(4x-1)}$$