

Alg 2 - Factoring Review Assignment (Mar 1-2) HW Date _____ Period _____

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Factor each completely. When factored, multiply your factors to verify that your answers are correct.

1) $x^3 - 11x^2 + 18x$

2) $-n^3 - 2n^2 + 48n$

3) $-5n^2 - 24n - 27$

4) $5b^3 + 4b^2 - 12b$

5) $4x^3 - 45x^2 + 50x$

6) $10r^2 - 33r - 54$

7) $x^2 + 16xy + 60y^2$

8) $32x^2 - 140xy + 48y^2$

Solve each equation by factoring.

9) $r^2 + 9r + 18 = 0$

10) $x^2 + 3x - 29 = -2x - 5$

Find all roots/zeros.

11) $x(2x - 1)(x - 1) = 0$

12) $f(x) = x(5x - 3)(x - 4)$

13) $y = x(3x - 2)(x + 4)$

14) $x(3x^2 + x - 8) = 0$

15) $f(x) = x(x^2 - 10x + 2)$

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

Factor each completely.

17) $250 - 128x^3$

18) $u^3 - 8$

19) $81x^3 + 375$

20) $32x^3 - 4$

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Factor each completely. When factored, multiply your factors to verify that your answers are correct.

1) $x^3 - 11x^2 + 18x$

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

2) $-n^3 - 2n^2 + 48n$

$-n(n - 6)(n + 8)$

3) $-5n^2 - 24n - 27$

$-(5n + 9)(n + 3)$

4) $5b^3 + 4b^2 - 12b$

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

5) $4x^3 - 45x^2 + 50x$

$x(x - 10)(4x - 5)$

6) $10r^2 - 33r - 54$

$(2r - 9)(5r + 6)$

7) $x^2 + 16xy + 60y^2$

$(x + 6y)(x + 10y)$

8) $32x^2 - 140xy + 48y^2$

$4(x - 4y)(8x - 3y)$

Solve each equation by factoring.

9) $r^2 + 9r + 18 = 0$

$\{-6, -3\}$

10) $x^2 + 3x - 29 = -2x - 5$

$\{3, -8\}$

Find all roots/zeros.

11) $x(2x - 1)(x - 1) = 0$

$$\left\{0, \frac{1}{2}, 1\right\}$$

12) $f(x) = x(5x - 3)(x - 4)$

$$\left\{0, \frac{3}{5}, 4\right\}$$

13) $y = x(3x - 2)(x + 4)$

$$\left\{0, \frac{2}{3}, -4\right\}$$

14) $x(3x^2 + x - 8) = 0$

$$\left\{0, \frac{-1 + \sqrt{97}}{6}, \frac{-1 - \sqrt{97}}{6}\right\}$$

15) $f(x) = x(x^2 - 10x + 2)$

$$\{0, 5 + \sqrt{23}, 5 - \sqrt{23}\}$$

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

$$\{0, -1 + \sqrt{3}, -1 - \sqrt{3}\}$$

Factor each completely.

17) $250 - 128x^3$

$$2(5 - 4x)(25 + 20x + 16x^2)$$

18) $u^3 - 8$

$$(u - 2)(u^2 + 2u + 4)$$

19) $81x^3 + 375$

$$3(3x + 5)(9x^2 - 15x + 25)$$

20) $32x^3 - 4$

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