Name_____

Factoring Quadratic Expressions

Date_____ Period_____

Factor each completely. Use factors to solve.

1) $x^2 - 7x = 18$

2) $p^2 - 5p - 14 = 0$

3) $m^2 - 9m + 8 = 0$

4) $x^2 - 16x + 63 = 0$

5) $7x^2 - 31x = 20$

6) $7k^2 + 9k = 0$

7) $7x^2 - 45x = 28$

8) $2b^2 + 17b + 21 = 0$

9) $5p^2 - p - 18 = 0$

10) $28n^4 + 16n^3 = 80n^2$

11) $3b^3 - 5b^2 + 2b = 0$

12) $7x^2 - 32x = 60$

13) $30n^2 b - 87nb + 30b = 0$

14) $9r^2 - 5r = 10$

15) $9p^2 r + 73pr + 70r = 0$

16) $9x^2 + 7x = 56$

17) $4x^3 + 43x^2 + 30x = 0$

18) $10m^2 + 89m = 9$

Critical thinking questions:

19) For what values of b is the expression factorable?

$x^2 + bx + 12$

20) Name four values of b which make the expression factorable:

$x^2 - 3x + b$

Kuta Software - Infinite Algebra 2

Name_____

Factoring Quadratic Expressions

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Factor each completely.

1) $x^2 - 7x - 18 = 0$

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

$x = 9, \; x = -2$

2) $p^2 - 5p - 14 = 0$

$(p + 2)(p - 7)$

$p = -2, 7$

3) $m^2 - 9m + 8 = 0$

$(m - 1)(m - 8)$

$m = 1, 8$

4) $x^2 - 16x + 63 = 0$

$(x - 9)(x - 7)$

$x = 9, 7$

5) $7x^2 - 31x - 20 = 0$

$(7x + 4)(x - 5)$

$x = -\frac{4}{7}, 5$

6) $7k^2 + 9k = 0$

$k(7k + 9)$

$k = 0, -\frac{9}{7}$

7) $7x^2 - 45x - 28 = 0$

$(7x + 4)(x - 7)$

$x = -\frac{4}{7}, 7$

8) $2b^2 + 17b + 21 = 0$

$(2b + 3)(b + 7)$

$b = -\frac{3}{2}, -7$

9) $5p^2 - p - 18 = 0$

$(5p + 9)(p - 2)$

$p = -\frac{9}{5}, 2$

10) $28n^4 + 16n^3 - 80n^2 = 0$

$4n^2(7n - 10)(n + 2)$

$n = 0, \frac{10}{7}, -2$

11) $3b^3 - 5b^2 + 2b = 0$

$b(3b - 2)(b - 1)$

$b = 0, \frac{2}{3}, 1$

12) $7x^2 - 32x - 60 = 0$

$(7x + 10)(x - 6)$

$x = -\frac{10}{7}, 6$

13) $30n^2b - 87nb + 30b = 0$

$3b(2n - 5)(5n - 2)$

$b = 0, \frac{5}{2}, \frac{2}{5}$

14) $9r^2 - 5r - 10$

Not factorable

15) $9p^2r + 73pr + 70r = 0$

$r(p + 7)(9p + 10)$

$r = 0, \; p = -7, -\frac{10}{9}$

16) $9x^2 + 7x - 56$

Not factorable

17) $4x^3 + 43x^2 + 30x = 0$

$x(x + 10)(4x + 3)$

$x = -10, -3/4$

18) $10m^2 + 89m - 9 = 0$

$(m + 9)(10m - 1)$

$m = -9, \frac{1}{10}$

Critical thinking questions:

19) For what values of b is the expression factorable?

$x^2 + bx + 12$

$13, 8, 7, -13, -8, -7$

20) Name four values of b which make the expression factorable:

$x^2 - 3x + b$

Many answers. Ex: $0, 2, -4, -10, -18$