Name_____ ID: 1
Factoring Review Day   Date_____ Period_____

Factor each completely.
Steps to factoring:
1. Factor out a greatest common factor (GCF)
2. Multiply AxC.
3. What 2 numbers give you AxC that also add to equal B?
4. Put those numbers in (X ± #)(X ± #)
5. Divide both numbers by the A value and simplify fractions.
6. Any fractions that don't simplify to make a whole number, simply move that denominator in front of the X in that set of ( ).

1) $3x^2 + 2x - 40$

2) $2x^2 + 21x + 27$

3) $x^2 - 5x + 6$

4) $b^2 - 4b + 4$

5) $21x^2 + 135x + 54$

6) $45x^2 + 425x + 180$

7) $10x^2 - 13x - 3$

8) $9m^2 + 8m - 20$

9) $54x^2 + 108x + 48$

10) $6x^2 + 31x + 18$

Solve each equation by factoring.
1. Make sure the equations is in standard form and set equal to zero before you begin factoring.
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7. Any fractions that don't simplify to make a whole number, simply move that denominator in front of the X in that set of ( ).
8. Set each set of ( ) = 0 and solve.

11) $2v^2 + 3v - 20 = 0$

12) $14x^2 - 63x + 49 = 0$

13) $p^2 - 13p + 45 = 5$

14) $4m^2 - 18m - 7 = -5m + 5$

15) $8v^2 - 11v - 60 = -7v$

16) $28a^2 + 34a + 12 = 4 - 2a$

Solve each equation with the quadratic formula.

17) $4p^2 - 81 = 0$

18) $4n^2 + 11n - 119 = 0$

19) $2x^2 + 8x + 1 = 0$

20) $12b^2 + 3b - 14 = 0$

21) $12p^2 + 8p - 9 = 4$

22) $4v^2 + 6v - 4 = -3$

23) $n^2 = 10n + 39$

24) $4n^2 + 4n = 48$

25) $3n^2 + 2n - 137 = 1 - 2n^2 + 9n$

26) $-a^2 - 3a - 12 = -9a^2 + 7$

27) $3k^2 + k = 11k - 8$

28) $7b^2 - 14 = 7b - 7$

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1) $3x^2 + 2x - 40$

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

2) $2x^2 + 21x + 27$

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

3) $x^2 - 5x + 6$

   $(x - 3)(x - 2)$

4) $b^2 - 4b + 4$

   $(b - 2)^2$

5) $21x^2 + 135x + 54$

$\quad 3(7x + 3)(x + 6)$

6) $45x^2 + 425x + 180$

$\quad 5(x + 9)(9x + 4)$

7) $10x^2 - 13x - 3$

$\quad (2x - 3)(5x + 1)$

8) $9m^2 + 8m - 20$

$\quad (m + 2)(9m - 10)$

9) $54x^2 + 108x + 48$

$\quad 6(3x + 4)(3x + 2)$

10) $6x^2 + 31x + 18$

$\quad (2x + 9)(3x + 2)$

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11) $2v^2 + 3v - 20 = 0$

$$\left\{\frac{5}{2}, -4\right\}$$

12) $14x^2 - 63x + 49 = 0$

$$\left\{\frac{7}{2}, 1\right\}$$

13) $p^2 - 13p + 45 = 5$

$$\{8, 5\}$$

14) $4m^2 - 18m - 7 = -5m + 5$

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

15) $8v^2 - 11v - 60 = -7v$

$$\left\{-\frac{5}{2}, 3\right\}$$

16) $28a^2 + 34a + 12 = 4 - 2a$

$$\left\{-\frac{2}{7}, -1\right\}$$

Solve each equation with the quadratic formula.

17) $4p^2 - 81 = 0$

$$\left\{\frac{9}{2}, -\frac{9}{2}\right\}$$

18) $4n^2 + 11n - 119 = 0$

$$\left\{\frac{17}{4}, -7\right\}$$

19) $2x^2 + 8x + 1 = 0$

$$\left\{\frac{-4 + \sqrt{14}}{2}, \frac{-4 - \sqrt{14}}{2}\right\}$$

20) $12b^2 + 3b - 14 = 0$

$$\left\{\frac{-3 + \sqrt{681}}{24}, \frac{-3 - \sqrt{681}}{24}\right\}$$

21) $12p^2 + 8p - 9 = 4$

$$\left\{\frac{-2 + \sqrt{43}}{6}, \frac{-2 - \sqrt{43}}{6}\right\}$$

22) $4v^2 + 6v - 4 = -3$

$$\left\{\frac{-3 + \sqrt{13}}{4}, \frac{-3 - \sqrt{13}}{4}\right\}$$

23) $n^2 = 10n + 39$

$$\{13, -3\}$$

24) $4n^2 + 4n = 48$

$$\{3, -4\}$$

25) $3n^2 + 2n - 137 = 1 - 2n^2 + 9n$

$$\left\{6, -\frac{23}{5}\right\}$$

26) $-a^2 - 3a - 12 = -9a^2 + 7$

$$\left\{\frac{3 + \sqrt{617}}{16}, \frac{3 - \sqrt{617}}{16}\right\}$$

27) $3k^2 + k = 11k - 8$

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

28) $7b^2 - 14 = 7b - 7$

$$\left\{\frac{1 + \sqrt{5}}{2}, \frac{1 - \sqrt{5}}{2}\right\}$$