Name_____

12.4.D1 ~ Solving Quadratics by Factoring   Past due on_____ Period_____

Determine the roots of each quadratic equation using the Zero Product Property.

1) $(x + 5)(x - 2) = 0$

2) $4n(n - 8) = 0$

3) $3(r + 8)(r - 10) = 0$

4) $(9k - 5)(2k - 5) = 0$

Determine the roots of each quadratic equation via factoring and the Zero Product Property. (If necessary, refer to the 12.4 example "Solving Quadratic Equations Using Factoring" in the Chapter 12 Summary.)

5) $p^2 + 2p - 35 = 0$

6) $x^2 + 14x + 24 = 0$

7) $3k^2 - 42k + 144 = 0$

8) $2n^2 + 14n - 16 = 0$

9) $m^2 + 11m + 18 = -12$

10) $v^2 + 4v - 65 = -5$

SPIRAL REVIEW

11) The number of members of a club increases by a constant percent each year. The exponential function $M = 200(1.1^t)$ gives the number of members after t years. Which statement is NOT true?
   A) The club began with 200 members.
   B) After 2 years, there will be 242 members.
   C) The membership increases by 1% each year.
   D) Each year, the number of members increases by a factor of 1.1.

12) Which statement is NOT true about the quadratic function $f(x) = x^2 + 5x + 6$?
   A) The x-intercepts are $(-2, 0)$ and $(-3, 0)$.   B) The range is $y \geq -2.5$
   C) The function has a minimum.   D) The y-intercept is $(0, 6)$.

13) Which inequality has the same solution as $-3x - 2 < -20$?
   A) $5x - 1 > 29$ B) $2x - 5 < 7$
   C) $4 - x > 10$ D) $2(x + 3) < 9$

14) Which point should NOT be included on the graph of $f(x) = 9x - 2$?
   A) $(10, 88)$ B) $(3, 25)$ C) $(0, -2)$ D) $(-2, -16)$

15) Which function does NOT have a y-intercept of $(0, 7)$?
   A) $f(x) = 3 \cdot 5^x + 4$ B) $j(x) = 4x + 7$
   C) $h(x) = (x - 3)^2 + 7$ D) $g(x) = 2x^2 + 7$

16) Tickets to a concert cost $29.50 each, with a $1.95 service charge per ticket and a $8.50 charge per order. Which function gives the total cost C for an order of x tickets to the concert?
   A) $c(x) = 10.45 + 29.5x$ B) $c(x) = 29.5x + 8.5 \cdot 1.95^x$
   C) $c(x) = 8.5 + 31.45x$ D) $c(x) = 39.95x$

17) How does $h(x) = -(x - 3)^2 + 4$ compare to the graph of $f(x) = x^2$?
   A) It has been reflected over the x-axis and shifted 3 units right and 4 units up.
   B) It has been reflected over the y-axis and shifted 3 units left and 4 units up.
   C) It has been reflected over the x-axis and shifted 3 units left and 4 units up.
   D) It has been reflected over the y-axis and shifted 3 units right and 4 units up.

18) Solve the literal equation $-x + 2 = -d + 2r$, for x
   A) $x = d - 2r + 2$ B) $x = -2r + d - 2$
   C) $x = -d - 2r + 2$ D) $x = d + 2r + 2$