Name: _____ Date: _____

Section 2.4 Select and Apply Factoring Strategies

1. Factor each perfect square trinomial.
   a) $x^2 + 10x + 25$
   b) $k^2 - 12k + 36$
   c) $4v^2 + 28v + 49$
   d) $100h^2 + 20h + 1$

2. Choose one of the expressions in question 1.
   a) Check your result by expanding and simplifying the product of the factors.
   b) Sketch an algebra-tile model that relates the trinomial to its factors.

3. Factor each difference of squares.
   a) $x^2 - 64$
   b) $p^2 - 121$
   c) $4w^2 - 9$
   d) $36m^2 - 169$

4. Choose one of the expressions in question 3. Check your result by expanding and simplifying the product of the factors.

5. Factor fully, if possible. If not possible, write *not factorable*. Check for common factors first.
   a) $2x^2 + 12x + 18$
   b) $3w^2 - 48$
   c) $k^4 - 16$
   d) $n^3 - 9n$
   e) $8v^2 + 8v + 2$
   f) $3p^3 - 30p^2 + 75p$
   g) $9b^2 - 25$
   h) $3y^2 - 12$
   i) $9c^2 + 12c + 4$
   j) $x^4 - 625$
   k) $7y^2 + 21y + 35$
   l) $6d^2 - 7d - 20$

   m) $9x^2 - 15x - 6$
   n) $5f^2 - 70f + 245$
   o) $12w^2 - 5w + 6$
   p) $7b^2 - 63$
   q) $11q^2 + 11q - 220$
   r) $15h^2 - 2h - 8$
   s) $20m^3 - 45m$
   t) $9a^2 + 36a + 36$

6. Choose two expressions in question 5. Check your result by expanding and simplifying the product of the factors.

7. a) Write the quadratic function
      $y = x^2 + 10x + 25$ in factored form.
   b) How many zeros does this function have? Explain how you can tell.

8. a) Write the quadratic function $y = x^2 - 16$ in factored form.
   b) Identify the axis of symmetry for the graph of the function. Explain how you can tell.

9. a) Give an example of a polynomial that can be factored by factoring out the greatest common factor and factoring a difference of squares.
   b) Prove that your example works.

10. a) Give an example of a polynomial that can be factored by applying two strategies of your choice.
    b) Identify the strategies and prove that your example works.