Chapter 6 Unit Test - Factoring

Name_____Section_____

Be sure to show all your work and circle your answer.

Factor the following completely:

1) $4x^5y^6 - 12x^5y^5 - 16x^6y^5$ 2) $x^2 - 2x - 35$

3) $100x^3 - 700x^2y + 1200xy^2$ 4) $49a^2 + 112a + 64$

5) $16x^2(2x - 7) - 25y^2(2x - 7)$ 6) $125x^3 + 64$

7) $243d^4 - 3$ 8) $x^4 + 2x^3 - 27x - 54$

9) $12x^2y - 7xy - 10y + 36x^2 - 21x - 30$

10) $15x^2 - 14x - 8$ 11) $27x^3 + 48x$

12) $b^4 - 7b^2 - 144$ 13) $\frac{9}{121}p^2 - \frac{24}{77}pq + \frac{16}{49}q^2$

Solve the following:

14) $x^2 - 19x + 60 = 0$ 15) $(x - 7)(x + 2) = -4(x - 4)$

16) $6x^2 - 15 = 13x$

Set-up the equation and solve the following:

17) If the product of two consecutive odd integers is 143, find the integers.

18) The length of a rectangle is four more than three times the width. If the area is 119 m^2, find the dimensions.

19) One leg of a right triangle is six centimeters more than triple the other. The hypotenuse is six centimeters less than four times the length of the shorter leg. Find the lengths of the sides of the triangle.

Answer Key:

1) $4x^5y^5(y - 3 - 4x)$ 2) $(x - 7)(x + 5)$ 3) $100x(x - 4y)(x - 3y)$

4) $(7a + 8)^2$ 5) $(2x - 7)(4x - 5y)(4x + 5y)$

6) $(5x + 4)(25x^2 - 20x + 16)$ 7) $3(3d - 1)(3d + 1)(9d^2 + 1)$

8) $(x + 2)(x - 3)(x^2 + 3x + 9)$ 9) $(y + 3)(3x + 2)(4x - 5)$

10) $(3x - 4)(5x + 2)$ 11) $3x(9x^2 + 16)$ 12) $(b - 4)(b + 4)(b^2 + 9)$

13) $\left(\frac{3}{11}p - \frac{4}{7}q\right)^2$ 14) $\{4, 15\}$ 15) $\{-5, 6\}$ 16) $\{-\frac{5}{6}, 3\}$

17) The integers are either -13 & -11 or 11 & 13.

18) The dimensions are 21 m by $5\frac{2}{3}$ m.

19) The sides are 14 cm, 48 cm, and 50 cm.