**Chapter 7 Review**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Complete the sentences below with vocabulary words from Chapter 7.**

**1.** A number written as a product so that each of its factors has no factors other than 1 and itself is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**2.** The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of two monomials is the greatest of the factors that the monomials share.

**Write the prime factorization of each number.**

**3.** 12 **4.** 20 **5.** 114 **6.** 23

**Find the GCF of each pair of numbers.**

**7.** 15 and 50 **8.** 36 and 132 **9.** 29 and 30 **10.** 54 and 81

**Find the GCF of each pair of monomials.**

**11.** 9*m* and 3 **12.** 4*x* and $2x^{2}$ **13.** -$18b^{4}$ and $27b^{2}$ **14.** 100*r* and $25r^{5}$

**15.** A hardware store carries 42 types of boxed nails and 36 types of boxed screws. The store manager wants to build a rack so that he can display the hardware in rows. He wants to put the same number of boxes in each row, but he wants no row to contain both nails and screws. What is the greatest number of boxes that he can display in one row? How many rows will there be if the manager puts the greatest number of boxes in each row?

**Factor each polynomial. Check your answer.**

**16.** $5x - 15x^{3}$ **17.** $40p^{3} - 10p^{2} + 30p$ **18.** -14*v* - 21  **19.** $4a^{2} - 12a - 8$

**20.** A civil engineer needs the area of a rectangular lot to be $(6x^{2} + 5x) ft^{2}$ . Factor this polynomial to find possible expressions for the dimensions of the lot.

**Factor each expression.**

**21.** 2*x* (*x* - 4) + 9 (*x* - 4) **22.** *t* (3*t* + 5) - 6 (3*t* + 5) **23.** 5 (6 - *n*) - 3*n* (6 - *n*)

**Factor each polynomial. Check your answer.**

**24.** $n^{3} + n - 4n^{2} – 4$ **25.** $6b^{2}- 8b + 15b – 20$ **26.** 

**27.** $3t^{2} + 18t + t + 6$ **28.** $10m^{3} + 15m^{2} - 2m – 3$ **29.** $8p^{3}+ 4p - 6p^{2} – 3$

**Factor each trinomial. Check your answer**.

**30.** $x^{2} + 6x + 5$ **31.**$ x^{2} + 6x + 8$ **32.** $x^{2}+ 8x + 15$ **33.**  $x^{2}- 8x + 12$

**34.** $x^{2} + 10x + 25$ **35**$.x^{2} - 13x + 22$ **35.**  $x^{2}+ 24x + 80$ **36.**  $x^{2}- 26x + 120$

**37.** $x^{2}+ 5x - 84$ 3**8**$. x^{2}- 5x – 24$ **39.** $x^{2} - 3x - 28$  **40.** $x^{2}+ 4x – 5$

**41.** $x^{2}+ x - 6$ **42.** $x^{2} + x – 20$ **43.** $x^{2}- 2x - 48$ **44.** $x^{2}- 5x - 36$

**45.** A rectangle has an area of ($y^{2}+ 8y + 15$) $m^{2}$ .What is the width of the rectangle?

**Determine whether each trinomial is a perfect square. If so, factor. If not, explain.**

**46.** $x^{2} + 12x + 36$ **47.** $x^{2} + 5x + 25$ **48.** $x^{2}- 2x + 1$  **49.** $x^{2} + 2x + 4$

**Determine whether each binomial is a difference of two squares. If so, factor. If not, explain.**

**50.** $x^{2} - 81$ **51.** $x^{2}- 2$ **52.** $x^{2}- y^{6}$ **53** $(-12)^{2} - \left(x^{2}\right)^{3}$

**Tell whether each polynomial is completely factored. If not, factor it.**

**54.** $4x^{2} + 10x + 6 = (4x + 6) (x + 1)$ **55.** $3x^{2} + 75 = 3 (x^{2} + 25$)

**56.** $b^{4} - 81 = (b^{2} + 9) (b^{2} - 9)$ **57.** $x^{2}- 6x + 9 = (x - 3) ^{2}$

**Factor each polynomial completely. Check your answer.**

**58.** $4x^{2} - 64$ **59.** $3b^{5} - 6b^{4} - 24 b^{2}$ **60.** $a^{4}b^{3}-a^{2}b^{5}$ **61.** $t^{20} - t^{4}$

**62.** $5x^{2} + 20x + 15$  **63.** $2x^{4} - 50x^{2}$ **64.** 8*t* + 32 + 2*st* + 8*s* **65.** $25m^{3}-90m^{2}-40m$