

MAT 0024 Sample Test 4
Factor the Following Polynomials Completely

Name _____

1) $x^2 + 5x + 6$

2) $x^2 - 16$

3) $x^2 + 36$

4) $x^2 - 20x + 64$

5) $x^3 + 5x^2 + 2x + 10$

6) $8x^4 - 12x^3$

7) $2x^2 + 3x + 1$

8) $x^2 + 13x - 48$

9) $4x^3 + 12x^2 + 8x$

10) $-x^2 + x + 20$

11) $x^4 - x^2$

12) $x^2 - 7x - 4$

13) $36x^2 - 4$

14) $4x^2 - 25x + 6$

15) $x^3 - 3x^2 - 4x + 12$

16) $x^4 - 8x^2 - 9$

17) $2x^2 + 35x + 48$

18) $x^2 + 6xy + 9y^2$

Solve the Following Equations

19) $x^2 - 2x - 3 = 0$

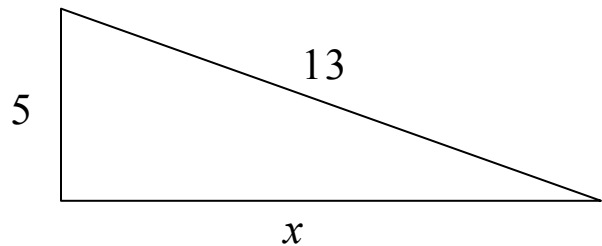
20) $x^2 = 36$

21) $4x^2 + 12x = 0$

22) $3x^2 - 21x + 18 = 0$

23) $2x^2 - 5x + 2 = 0$

- 24) Refer to the right triangle at the right.
Find the length of the missing side.



- 25) The length of a rectangle is 6 inches less than twice the width. The Area is 108 square inches.
Find the length and the width of the rectangle.

Simplify the following rational expression. Also, state the restriction(s).

$$26) \quad \frac{x^2 + 5x + 6}{x^2 - 2x - 8}$$

Restriction(s):

Multiply or Divide, as Indicated

$$27) \quad \frac{8x^2y^6}{x^2 + 9x + 8} \div \frac{4x^3y}{x + 8}$$

$$28) \quad \frac{x^2 + 4x + 3}{x^2 - x - 12} \cdot \frac{x^2 - 16}{x^2 + 3x - 4}$$

29) Simplify the ratio of 9 inches to 2 feet.

30) Solve the proportion: $\frac{8}{2x} = \frac{7}{x - 3}$

31) Suppose that the recommended dosage of a medicine is 7 cc per 100 pounds. Find the dosage for a man that weighs 215 pounds. Round your answer to 1 decimal place.