Exercises

Factor completely.

1. $3x + 36$

2. $4x^2 + 16x$

3. $x^2 - 14x - 40$

4. $x^2 + 4x - 12$

5. $x^2 - 144$

6. $x^4 - 16$

7. $81x^2 - 49$

8. $50x^2 - 72$

9. $2x^3 - 16x^2 - 18x$

10. $4x^2 + 17x - 15$

11. $-8x^2 - 15x + 2$

12. $x^3 - 3x^2 + 5x - 15$

13. $5rs + 25r - 3s - 15$

14. $125x^3 - 64$

15. $2x^3 + 128y^3$

Solve the following equations.

16. $(x - 4)^2 - 9 = 0$

17. $(x - 10)^2 - 48 = 0$

18. $x^2 + 14x + 45 = 0$

19. $x^2 + 6x - 10 = 30$

20. $4x^2 - 100 = 0$

21. $6x^2 - 48x - 54 = 0$

22. $4x^2 + 2x = 12$

23. $9x^2 + 7x - 4 = 0$

24. $3x^2 + 9x - 6 = 0$

25. $x^3 - 5x^2 - 4x + 20 = 0$

Answers

1. $3(x + 12)$

2. $4x(x + 4)$

3. $(x - 10)(x - 4)$

4. $(x + 6)(x - 2)$

5. $(x + 12)(x - 12)$

6. $(x^2 + 4)(x + 2)(x - 2)$

7. $(9x + 7)(9x - 7)$

8. $2(5x + 6)(5x - 6)$

9. $2x(x - 9)(x + 1)$

10. $(4x - 3)(x + 5)$

11. $(-8x + 1)(x + 2)$

12. $(x^2 + 5)(x - 3)$

13. $(5r - 3)(s + 5)$

14. $(5x - 4)(25x^2 + 20x + 16)$

15. $(x + 4y)(x^2 - 4xy + 16y^2)$

16. $x = 7$ and $x = 1$

17. $x = 10 \pm 4\sqrt{3}$

18. $x = -5$ and $x = -9$

19. $x = 4$ and $x = -10$

20. $x = 5$ and $x = -5$

21. $x = 9$ and $x = -1$

22. $x = -2$ and $x = \frac{3}{2}$

23. $x = \frac{-7 \pm \sqrt{193}}{18}$

24. $x = \frac{-3 \pm \sqrt{17}}{2}$

25. $x = 2$, $x = -2$, and $x = 5$