

LESSON 11.4 Skills Practice

Name _____ Date _____

**Are You Afraid of Ghosts?
Factored Form of a Quadratic Function****Vocabulary**

Write a definition for each term in your own words.

1. factor an expression

2. factored form

Problem Set

Factor each expression.

1. $6x - 24$

$$\begin{aligned} 6x - 24 &= 6(x) - 6(4) \\ &= 6(x - 4) \end{aligned}$$

2. $3x + 36$

3. $10x + 15$

4. $42x - 35$

5. $-x - 9$

6. $-2x + 14$

11

Determine the x -intercepts of each quadratic function in factored form.

7. $f(x) = (x - 2)(x - 8)$

The x -intercepts are $(2, 0)$ and $(8, 0)$.

8. $f(x) = (x + 1)(x - 6)$


9. $f(x) = 3(x + 4)(x - 2)$

10. $f(x) = 0.25(x - 1)(x - 12)$

11. $f(x) = 0.5(x + 15)(x + 5)$

12. $f(x) = 4(x - 1)(x - 9)$

Write a quadratic function in factored form with each set of given characteristics.

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13. Write a quadratic function that represents a parabola that opens downward and has x -intercepts $(-2, 0)$ and $(5, 0)$.

Answers will vary but functions should be in the form:

$$f(x) = a(x + 2)(x - 5) \text{ for } a < 0$$

14. Write a quadratic function that represents a parabola that opens downward and has x -intercepts $(2, 0)$ and $(14, 0)$.
15. Write a quadratic function that represents a parabola that opens upward and has x -intercepts $(-8, 0)$ and $(-1, 0)$.
16. Write a quadratic function that represents a parabola that opens upward and has x -intercepts $(3, 0)$ and $(7, 0)$.

Name _____ Date _____

17. Write a quadratic function that represents a parabola that opens downward and has x -intercepts $(-5, 0)$ and $(2, 0)$.
18. Write a quadratic function that represents a parabola that opens upward and has x -intercepts $(-12, 0)$ and $(-4, 0)$.

Determine the x -intercepts for each function using your graphing calculator. Write the function in factored form.

19. $f(x) = x^2 - 8x + 7$

 x -intercepts: $(1, 0)$ and $(7, 0)$

factored form: $f(x) = (x - 1)(x - 7)$

20. $f(x) = 2x^2 - 10x - 48$

21. $f(x) = -x^2 - 20x - 75$

22. $f(x) = x^2 + 8x + 12$

23. $f(x) = -3x^2 - 9x + 12$

24. $f(x) = x^2 - 6x$

Determine the x -intercepts for each function. If necessary, rewrite the function in factored form.

25. $f(x) = (3x + 18)(x - 2)$

factored form: $f(x) = 3(x + 6)(x - 2)$

 x -intercepts: $(-6, 0)$ and $(2, 0)$

26. $f(x) = (x + 8)(3 - x)$

27. $f(x) = (-2x + 8)(x - 14)$

28. $f(x) = (x + 16)(2x + 16)$

29. $f(x) = x(x + 7)$

30. $f(x) = (-3x + 9)(x + 3)$

