

We then set each factor equal to zero and solve for  $t$ .

$$4t - 13 = 0$$

$$4t + 13 = 0$$

$$4t = 13$$

$$4t = -13$$

$$t = \frac{13}{4} = 3.5$$

$$t = \frac{-13}{4} = -3.5$$

Since time in this instance cannot be negative, the correct answer is  $t = 3.5$  seconds. It took the rock 3.5 seconds to fall 196 feet to the bottom of the cliff.

## 4.R.6 Exercises

### Concept Check

**True/False.** Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

---

1. A trinomial is factorable if the middle term is the difference of the inner and outer products of two binomials.
2. The trial-and-error method of factoring a trinomial follows the same steps as the FOIL method of multiplication.
3. The first step in the  $ac$ -method of factoring is to rewrite the middle term.
4. Factoring can be checked by multiplying the factors and verifying that the product matches the original polynomial.

### Practice

Completely factor each polynomial. If a polynomial cannot be factored, write "not factorable."

---

5.  $6x^2 + 11x + 5$

6.  $-x^2 + 3x - 2$

7.  $x^2 + 8x + 64$

8.  $9x^2 - 3x - 20$

9.  $12x^2 - 38x + 20$

10.  $5a^2 - 7a + 2$

## Writing & Thinking

11. It is true that  $2x^2 + 10x + 12 = (2x + 6)(x + 2) = (2x + 4)(x + 3)$ . Explain how the trinomial can be factored in two ways. Is there some kind of error?
12. It is true that  $5x^2 - 5x - 30 = (5x - 15)(x + 2)$ . Explain why this is not the completely factored form of the trinomial.