

Name _____

Date _____

Additional Exercises 9.3
Form I
The Quadratic Formula

Solve the equation using the quadratic formula. Simplify irrational solutions, if possible.

1. $x^2 + 2x - 15 = 0$

1. _____

2. $x^2 - 9x = -14$

2. _____

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

3. _____

4. $x^2 - 6x + 3 = 0$

4. _____

5. $x^2 + 2x - 5 = 0$

5. _____

6. $x^2 - 14x + 30 = 0$

6. _____

7. $(4x + 6)^2 = 9$

7. _____

8. $4x^2 - 23x - 6 = 0$

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9. $18x^2 + 39x + 7 = -13$ 9. _____

10. $x^2 - 4x = 7$ 10. _____

11. $x^2 + 3x = 0$ 11. _____

12. The formula $P = 0.65x^2 - 0.25x + 2$ models the approximate population P , in thousands, for a species of fish in a local pond, x years after 2010. During what year will the population reach 17 thousand fish?

 12. _____

13. The formula $N = 2x^2 + 4x + 1$ represents the number of households N , in thousands, in a certain city that have a computer x years after 1990. According to the formula, in what year were there 97 thousand households with computers in this city?

 13. _____

14. The hypotenuse of a right triangle measures 5 cm. One leg is 2 cm. shorter than the other leg. Find the measures of each leg and round to the nearest tenth if necessary.

 14. _____

15. An object is thrown upward from the top of a 160-foot building with an initial velocity of 48 feet per second. The height h of the object after t seconds is given by the quadratic equation $h = -16t^2 + 48t + 160$. When will the object hit the ground? Round to the nearest tenth of a second if necessary.

 15. _____

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Additional Exercises 9.3
Form II
The Quadratic Formula

Solve the equation using the quadratic formula. Simplify irrational solutions, if possible.

1. $x^2 + 4x - 12 = 0$

1. _____

2. $2x^2 + 6x + 1 = 0$

2. _____

3. $3x^2 = -12x - 1$

3. _____

4. $x^2 = 9 - 4x$

4. _____

5. $x^2 + 5x + 1 = 0$

5. _____

6. $x^2 - 8x = -1$

6. _____

7. $3x^2 - 8x = -1$

7. _____

8. $x^2 - 2x - 4 = 0$

8. _____

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9. $3x^2 - 9x = -3$ 9. _____

10. $2x^2 + 6x + 3 = 0$ 10. _____

11. $x^2 + 10x + 6 = 0$ 11. _____

12. The formula $P = 0.65x^2 - 0.25x + 2$ models the approximate population P , in thousands, for a species of fish in a local pond, x years after 2005. During what year will the population reach 41.6 thousand fish?

 12. _____

13. The formula $N = 2x^2 + 4x + 1$ represents the number of households N , in thousands, in a certain city that have a computer x years after 1990. According to the formula, in what year were there 241 thousand households with computers in this city?

 13. _____

14. The hypotenuse of a right triangle measures 15 feet long. One leg of the triangle is 5 feet longer than the other leg. Find the perimeter of the triangle.

 14. _____

15. An object is thrown upward from the top of a 120-foot building with an initial velocity of 48 feet per second. The height h of the object after t seconds is given by the quadratic equation $h = -16t^2 + 48t + 120$. When will the object hit the ground? Round to the nearest tenth of a second if necessary.

 15. _____

Additional Exercises 9.3
Form III
The Quadratic Formula

Solve the quadratic equation by the square root property. If possible, simplify radicals or rationalize denominators.

1. $x^2 + 5x + 6 = 0$ 1. _____

2. $x^2 - 5x = 0$ 2. _____

3. $\frac{2}{3}x^2 - x + \frac{1}{6} = 0$ 3. _____

4. $0.01x^2 + 0.06x - 0.08 = 0$ 4. _____

5. $x^2 - 8x + 14 = 0$ 5. _____

6. $\frac{1}{3}x^2 - \frac{5}{6}x - \frac{1}{2} = 0$ 6. _____

7. $4x^2 + x - 7 = 0$ 7. _____

8. $2x^2 + 12x = -5$ 8. _____

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9. $6x^2 = -12x - 5$ 9. _____

10. $2x^2 + 6x + 1 = 0$ 10. _____

11. $\frac{1}{2}x^2 + \frac{1}{4}x - \frac{1}{2} = 0$ 11. _____

12. The formula $P = 0.68x^2 - 0.044x + 2$ models the approximate population P , in thousands, for a species of fish in a local pond, x years after 2006. During what year will the population reach 45.168 thousand fish?

 12. _____

13. The formula $N = 2x^2 + 4x + 1$ represents the number of households N , in thousands, in a certain city that have a computer x years after 2000. According to the formula, in what year were there 449 thousand households with computers in this city?

 13. _____

14. If the sides of a square are increased by 3 cm, its new area is 100 cm^2 . What did the sides of the square measure originally?

 14. _____

15. An object is thrown upward from the top of a 180-foot building with an initial velocity of 48 feet per second. The height h of the object after t seconds is given by the quadratic equation $h = -16t^2 + 48t + 180$. When will the object hit the ground? Round to the nearest tenth of a second if necessary.

 15. _____