3.2 HW

Solve each equation, and check the solutions.

6. $\sqrt{x+6} = 3$

8. $\sqrt{x+3} + 6 = 3$

10. $16 = 8 + \sqrt{x}$

12. $\sqrt{2x-3} = \sqrt{10-x}$

14. $\dfrac{\sqrt{x+9}}{4} = 3$

16. $\sqrt{x^2+9} = 5$

18. $\dfrac{5}{\sqrt{x-2}} = 5$

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18. $\dfrac{5}{\sqrt{x-2}} = 5$

ANSWER KEY

6. $\sqrt{x+6} = 3$

   $x = 3$

8. $\sqrt{x+3} + 6 = 3$

   No solution

10. $16 = 8 + \sqrt{x}$

    $x = 64$

12. $\sqrt{2x-3} = \sqrt{10-x}$

    $x = \dfrac{13}{3}$

14. $\dfrac{\sqrt{x+9}}{4} = 3$

    $x = 135$

16. $\sqrt{x^2+9} = 5$

    $x = 4 \text{ or } x = -4$

18. $\dfrac{5}{\sqrt{x-2}} = 5$

    $x = 3$

3.3 HW

Solve.

2. $\sqrt{2x-5}+\sqrt{x+6}=0$

4. $\sqrt{2x-5}-\sqrt{x+6}=2$

6. $\sqrt{x+4}=3+\sqrt{x}$

8. $\sqrt{2x+1}=x-1$

10. $2\sqrt{x}=1-\sqrt{4x-1}$

12. $\sqrt{4x-1}=2-2x$

14. $\sqrt{2x-8}+\sqrt{3x-12}=0$

16. $x-2=\sqrt{9x-36}$

ANSWER KEY

2. $\sqrt{2x-5} + \sqrt{x+6} = 0$

   No solution

4. $\sqrt{2x-5} - \sqrt{x+6} = 2$

   43

6. $\sqrt{x+4} = 3 + \sqrt{x}$

   No solution

8. $\sqrt{2x+1} = x - 1$

   4

10. $2\sqrt{x} = 1 - \sqrt{4x-1}$

    $\frac{1}{4}$

12. $\sqrt{4x-1} = 2 - 2x$

    $\frac{1}{2}$

14. $\sqrt{2x-8} + \sqrt{3x-12} = 0$

    4

16. $x - 2 = \sqrt{9x-36}$

    5, 8

3.5 HW

1. Find the exact value of $9^{\frac{11}{10}} \cdot 9^{\frac{2}{5}}$ without using a calculator.

2. Rewrite each expression so that each term is in the form kx^n, where k is a real number, x is a positive real number, and n is a rational number.

   a. $x^{-\frac{2}{3}} \cdot x^{\frac{1}{3}}$

   b. $2x^{\frac{1}{2}} \cdot 4x^{-\frac{5}{2}}$

   c. $\dfrac{10x^{\frac{1}{3}}}{2x^2}$

   d. $\left(3x^{\frac{1}{4}}\right)^{-2}$

   e. $x^{\frac{1}{2}}\left(2x^2 - \dfrac{4}{x}\right)$

ANSWER KEY

1. Find the exact value of $9^{\frac{11}{10}} \cdot 9^{\frac{2}{5}}$ without using a calculator.

$$9^{\frac{11}{10}} \cdot 9^{\frac{2}{5}} = 9^{\frac{11}{10}+\frac{2}{5}}$$
$$= 9^{\frac{15}{10}}$$
$$= 9^{\frac{3}{2}}$$
$$= \left(\sqrt[2]{9}\right)^3$$
$$= 27$$

2. Rewrite each expression so that each term is in the form kx^n, where k is a real number, x is a positive real number, and n is a rational number.

a. $x^{-\frac{2}{3}} \cdot x^{\frac{1}{3}}$

$x^{-\frac{1}{3}}$

b. $2x^{\frac{1}{2}} \cdot 4x^{-\frac{5}{2}}$

$8x^{-2}$

c. $\dfrac{10x^{\frac{1}{3}}}{2x^2}$

$5x^{-\frac{5}{3}}$

d. $\left(3x^{\frac{1}{4}}\right)^{-2}$

$\dfrac{1}{9}x^{-\frac{1}{2}}$

e. $x^{\frac{1}{2}}\left(2x^2 - \dfrac{4}{x}\right)$

$2x^{\frac{5}{2}} - 4x^{-\frac{1}{2}}$