

Name _____

Date _____

Chapter 10
Form A

1. For $f(x) = \sqrt{2-x}$, find
(a) the domain of f , and (b) $f(-14)$.
1a. _____
b. _____

For problems 2 – 8, simplify each expression. Assume that all variables represent positive numbers.

2. $\sqrt{50a^{10}b^4}$ 2. _____

3. $\sqrt[4]{243x^8y^3}$ 3. _____

4. $8\sqrt{12} - 6\sqrt{75} + \sqrt{48}$ 4. _____

5. $4a^4\sqrt{16ab^{13}} - 2b^2\sqrt[4]{a^5b^5}$ 5. _____

6. $(2\sqrt{3} + \sqrt{5})^2$ 6. _____

7. $(3\sqrt{x} - 4)(4\sqrt{x} + 5)$ 7. _____

8. $(\sqrt{x} + 2\sqrt{y})(\sqrt{x} - 2\sqrt{y})$ 8. _____

For problems 9 – 11, rationalize the denominator and simplify. Assume that all variables represent positive numbers.

9. $\sqrt{\frac{9x^3}{5}}$ 9. _____

10. $\sqrt[3]{\frac{27y}{2x}}$ 10. _____

11. $\frac{3\sqrt{x} + 2}{\sqrt{x} + 3}$ 11. _____

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For problems 12 – 16, perform the indicated operations. Assume that all variables represent positive numbers. Write answers in rational exponent form if rational exponents remain after simplifying.

12.
$$\frac{y^{\frac{2}{3}}y^{\frac{1}{4}}}{y^{\frac{5}{6}}}$$
 12. _____

13.
$$\left(\frac{25x^4}{100x^8}\right)^{\frac{1}{2}}$$
 13. _____

14.
$$\left(9x^2y^{\frac{2}{3}}\right)^{\frac{1}{2}}\left(4x^{\frac{3}{2}}y^{\frac{4}{3}}\right)^3$$
 14. _____

15.
$$144^{\frac{3}{2}}$$
 15. _____

16.
$$(-64)^{\frac{4}{3}}$$
 16. _____

For problems 17 – 22, perform the indicated operation. If answers are complex, write in $a + bi$ form.

17.
$$\sqrt{-121}$$
 17. _____

18.
$$\sqrt{-72x^2}$$
 18. _____

19.
$$6i(3 - 2i)$$
 19. _____

20.
$$(2 - 3i)(3 - 4i)$$
 20. _____

21.
$$\frac{4 - i}{5 + i}$$
 21. _____

22.
$$i^{47}$$
 22. _____

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For problems 23 – 25, solve the radical equation.

23. $\sqrt{2-x} = 6$

23. _____

24. $\sqrt[3]{2x+3} = 6$

24. _____

25. $\sqrt{3x+10} = x+4$

25. _____

Chapter 10 Answers

Form A

- 1a. $(-\infty, 2]$ b. 4 2. $5a^5b^2\sqrt{2}$ 3. $3x^2\sqrt[4]{3y^3}$ 4. $-10\sqrt{3}$ 5. $6ab^3\sqrt[4]{ab}$ 6. $17+4\sqrt{15}$
7. $12x-\sqrt{x}-20$ 8. $x-4y$ 9. $\frac{3x\sqrt{5x}}{5}$ 10. $\frac{3\sqrt[3]{4x^2y}}{2x}$ 11. $\frac{3x-7\sqrt{x}-6}{x-9}$ 12. $y^{\frac{11}{12}}$
13. $2x^2$ 14. $192x^{\frac{11}{2}}y^{\frac{13}{3}}$ 15. 1,728 16. $\frac{1}{256}$ 17. $11i$ 18. $6x\sqrt{2}i$ 19. $12+18i$
20. $-6-17i$ 21. $\frac{19}{26}-\frac{9}{26}i$ 22. $-i$ 23. $\{-34\}$ 24. $\left\{\frac{27}{2}\right\}$ 25. $\{-3, -2\}$