Name: _____ Class: _____ Date: _____ ID: A

Chapter 5 Practice Test

Multiple Choice
Identify the choice that best completes the statement or answers the question. Show your work.

____ 1. Find the indicated real nth root(s) of a.
$n = 5, a = 1024$

A. $\frac{1}{4}$
C. -4
B. $204\frac{4}{5}$
D. 4

Evaluate the expression without using a calculator. Show work by writing the exponential form of the expression in radical form.

____ 2. $512^{-1/3}$

A. $-\frac{1}{8}$
C. $\frac{1}{8}$
B. $-170\frac{2}{3}$
D. -8

Find the real solution(s) of the equation. Round your answer to two decimal places when appropriate.

____ 3. $(x-8)^3 = 343$

A. $x \approx 7.05$
C. $x = 1$
B. $x = 15$
D. $x \approx \pm 7.05$

Use the properties of rational exponents to simplify the expression.

____ 4. $\frac{27^{3/4} \cdot 15^{3/4}}{5^{3/4}}$

A. $\frac{243}{4}$
C. $81^{3/2}$
B. 81
D. 27

____ 5. $\dfrac{81^{4/5} \cdot 18^{4/5}}{6^{4/5}}$

A. $243^{8/5}$

B. 243

C. 81

D. $\dfrac{972}{5}$

Use the properties of radicals to simplify the expression.

____ 6. $\dfrac{\sqrt{5} \cdot \sqrt{180}}{\sqrt{9}}$

A. 100

B. 50

C. 10

D. $\dfrac{1}{100}$

Write the expression in simplest form. Assume all variables are positive.

____ 7. $\dfrac{36v^{-3/5}w^{1/2}x^{-1/2}}{12v^{-1/2}w^{3/2}}$

A. $\dfrac{3v^{9/10}x^{1/2}}{vwx}$

B. $\dfrac{3v^{9/10}}{vwx^{1/2}}$

C. $\dfrac{3}{v^{1/10}wx^{1/2}}$

D. $\dfrac{3v^{9/10}wx^{1/2}}{vx}$

Write a rule for *g* described by the transformations of the graph of *f*.

____ 8. Let g be a vertical stretch by a factor of 3, followed by a translation 5 units down of the graph of $f(x) = \sqrt{x} + 2$.

A. $g(x) = 3\sqrt{x} + 1$

B. $g(x) = \sqrt{3x} + 1$

C. $g(x) = 3\sqrt{x} - 3$

D. $g(x) = \sqrt{3x} - 3$

____ 9. Let g be a reflection in the x-axis, followed by a translation 4 units down of the graph of $f(x) = 5\sqrt[3]{x-3}$.

A. $g(x) = -5\sqrt[3]{x+3} - 4$

B. $g(x) = -5\sqrt[3]{x-3} - 4$

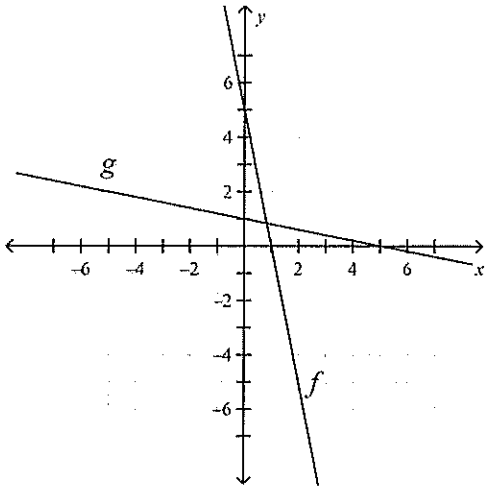
C. $g(x) = 5\sqrt[3]{-x-3} - 4$

D. $g(x) = 5\sqrt[3]{-x+3} - 4$

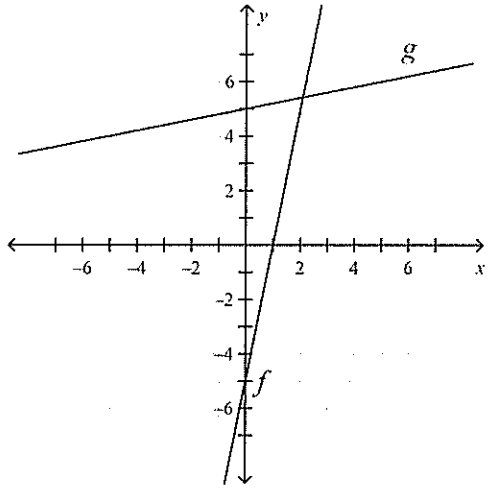
Find the inverse of the function. Then graph the function and its inverse.

____ 10. $f(x) = -5x + 5$

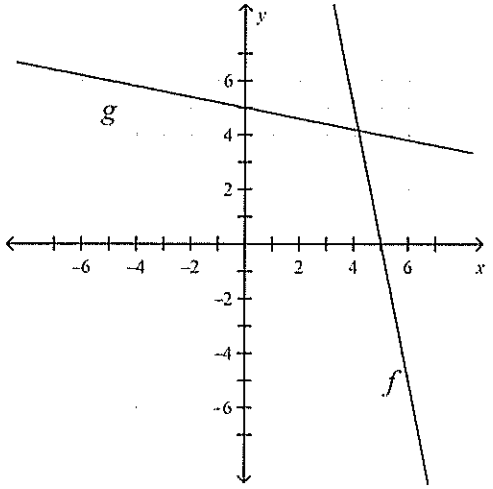
A. $g(x) = \dfrac{x-5}{-5}$



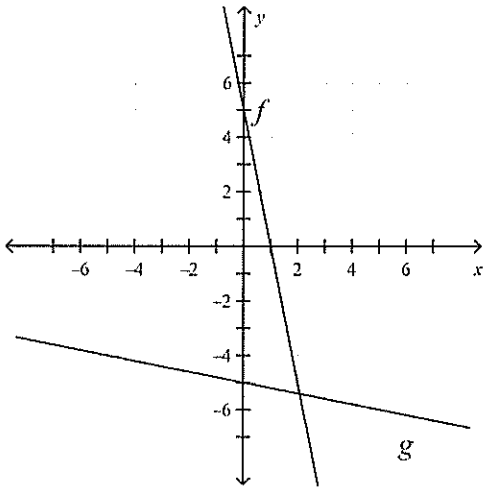
C. $g(x) = -\dfrac{1}{5}x - 5$



B. $g(x) = \dfrac{x-5}{-5}$



D. $g(x) = -\dfrac{1}{5}x - 5$



Short Answer

Use the properties of radicals to simplify the expression.

11. $\sqrt[5]{2} \cdot \sqrt[5]{16}$

Write the expression in simplest form.

12. $\dfrac{\sqrt[3]{4}}{\sqrt[3]{5}}$

13. $\sqrt{\dfrac{25}{2}}$

14. $\dfrac{8}{6+\sqrt{7}}$

Simplify the expression.

15. $8\sqrt[5]{11}-4\sqrt[5]{11}$

16. $7\sqrt[4]{567}+5\sqrt[4]{7}$

17. $\sqrt[6]{64x^{24}t^{12}}$

Perform the indicated operation. Assume all variables are positive.

18. $8\sqrt[5]{w} + 10\sqrt[5]{w}$

Solve the equation. Check for extraneous solutions.

19. $\sqrt{7x-6} = 8$

20. $\sqrt[3]{4x+5} = -3$

21. $\sqrt{-3x+28} = x-8$

22. $5x^{2/3} = 20$