Name: _____ **Period:** _____

Chapter 6 REVIEW

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

What is a simpler form of the radical expression?

____ 1. $\sqrt[4]{81x^{20}y^8}$
a. $3|x^5|y^2$
b. $9|x^{25}|y^4$
c. $9x^{25}|y^4|$
d. $3x^5|y^2|$

____ 2. $\sqrt[3]{27x^{15}y^{24}}$
a. $3x^5|y^8|$
b. $9x^{15}|y^{24}|$
c. $3x^5y^8$
d. $9|x^{15}|y^{24}$

____ 3. The formula for the volume of a sphere is $V = \frac{4}{3}\pi r^3$. Find the radius, to the nearest hundredth, of a sphere with a volume of 15 in.^{3}.
a. 3.58 in.
b. 258.01 in.
c. 1.53 in.
d. 1.85 in.

Multiply and simplify if possible.

____ 4. $\sqrt{7x}\left(\sqrt{x} - 7\sqrt{7}\right)$
a. $x\sqrt{7} - 49\sqrt{x}$
b. $\sqrt{7x} - 49x$
c. $x\sqrt{7} - x\sqrt{49}$
d. $-\sqrt{42x}$

What is the simplest form of the product?

____ 5. $\sqrt[3]{7x^7} \cdot \sqrt[3]{9x^4}$
a. $x^3 \cdot \sqrt[3]{63x^2}$
b. $\sqrt[3]{63x^{11}}$
c. $x^3 \cdot \sqrt[3]{63x^{11}}$
d. none of these

____ 6. $\frac{\sqrt[3]{270x^{20}}}{\sqrt[3]{5x}}$

a. $2x\sqrt[3]{3x^6}$
b. $3x^6\sqrt[3]{2x}$
c. $\sqrt[3]{135x^{19}}$
d. $3x^6\sqrt{135x}$

____ 7. $\frac{\sqrt{6x^8y^9}}{\sqrt{5x^2y^4}}$

a. $\frac{x^3y^2\sqrt{30y}}{5}$
b. $\frac{\sqrt{30x^{10}y^{13}}}{5x^2y^4}$
c. $5x^3y^2\sqrt{30y}$
d. none of these

What is the simplest form of the radical expression?

____ 8. $2\sqrt[4]{2x} + 6\sqrt[4]{2x}$

a. $8\sqrt[4]{4x}$
b. $16\sqrt[4]{2x}$
c. $8\sqrt[4]{2x}$
d. not possible to simplify

____ 9. A garden has width $\sqrt{13}$ and length $7\sqrt{13}$. What is the perimeter of the garden in simplest radical form?

a. $14\sqrt{13}$ units
b. $16\sqrt{13}$ units
c. 91 units
d. $8\sqrt{13}$ units

What is the simplest form of the expression?

____ 10. $\sqrt[3]{48} + \sqrt[3]{2058} - \sqrt[3]{750}$

a. $4\sqrt[3]{6}$
b. $14\sqrt[3]{6}$
c. $2.8\sqrt[3]{6}$
d. $9\sqrt[3]{6}$

What is the product of the radical expression?

____ 11. $\left(-5 - \sqrt{3}\right)^2$

a. $28 + 10\sqrt{3}$
b. $28 - 10\sqrt{3}$
c. $-13 + 5\sqrt{3}$
d. $25 - 10\sqrt{3}$

____ 12. $\left(5 - \sqrt{2}\right)\left(5 + \sqrt{2}\right)$

a. 23
b. 20
c. 27
d. 18

Simplify.

____ 13. $20^{\frac{1}{2}} \cdot 20^{\frac{1}{2}}$

a. $20^{\frac{1}{4}}$ b. $\sqrt{20}$ c. 20 d. 1

____ 14. $16^{\frac{1}{2}}$

a. 16^2 b. 4 c. $\sqrt{16^2}$ d. 16

____ 15. Write the exponential expression $3x^{\frac{3}{8}}$ in radical form.

a. $3\sqrt[8]{x^3}$
b. $\sqrt[8]{3x^3}$
c. $3\sqrt[3]{x^8}$
d. $3^{\frac{3}{8}}\sqrt[8]{x^3}$

____ 16. Write $(8a^{-3})^{-\frac{2}{3}}$ in simplest form.

a. $\frac{a^2}{4}$
b. $4a^2$
c. $\frac{1}{4a^2}$
d. none of these

What is the solution of the equation?

____ 17. $-10 + \sqrt{x + 8} = -4$

a. 36
b. 28
c. –2
d. 44

____ 18. $4(3 - x)^{\frac{4}{3}} - 5 = 59$

a. –5, 11
b. 5
c. 11
d. –11

What is the solution of the equation? Eliminate any extraneous solutions.

____ 19. $\sqrt{3x + 28} - 8 = x$

a. –9
b. 9 and –4
c. –4
d. –9 and –4

____ 20. Let $f(x) = x + 2$ and $g(x) = x^2$. Find $\left(g \circ f\right)(-5)$.

a. 9
b. –3
c. 49
d. –10

____ 21. You have a coupon good for $6 off the price of any large pizza. You also get a 20% discount on any pizza if you show your student ID. How much more would you pay for a large pizza if the cashier applies the coupon first?

a. $1.50
b. $0.00
c. $1.20
d. $.50

What is the inverse of the given relation?

____ 22. $y = 7x^2 - 3$.

a. $y = \pm\sqrt{\frac{x + 3}{7}}$
b. $x = \sqrt{\frac{y + 3}{7}}$
c. $y^2 = \frac{x - 3}{7}$
d. $y = \pm\sqrt{\frac{x - 3}{7}}$

____ 23. $y = 3x + 9$

a. $y = \frac{1}{3}x + 3$

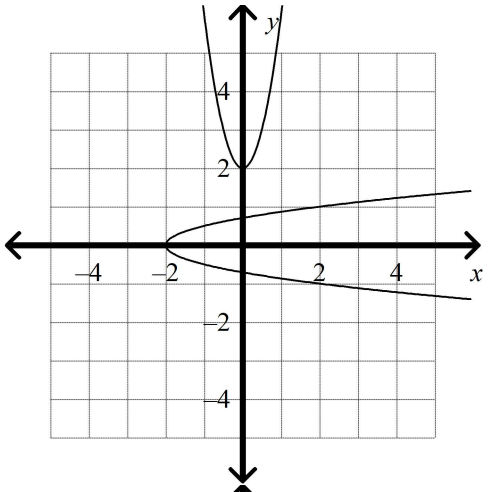
b. $y = 3x - 3$

c. $y = 3x + 3$

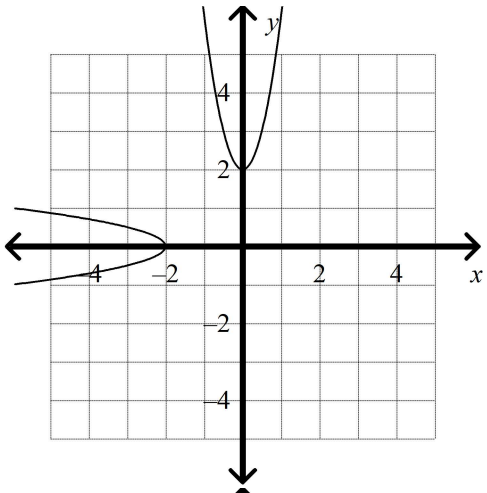
d. $y = \frac{1}{3}x - 3$

____ 24. Graph $y = -4x^2 - 2$ and its inverse.

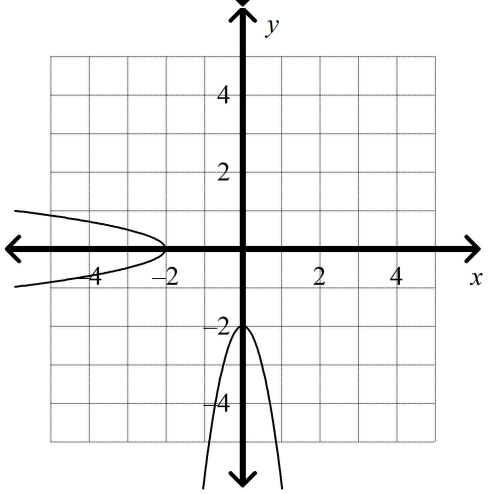
a.



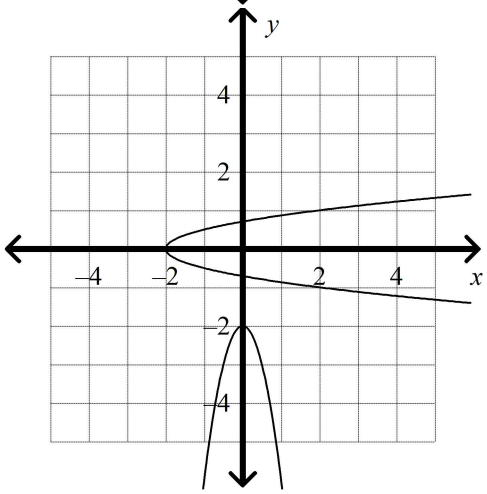
c.



b.

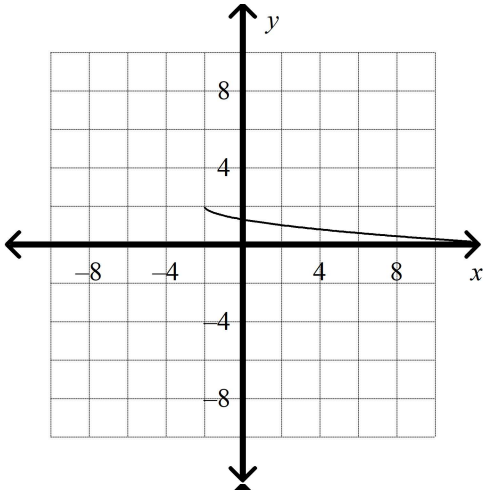


d.

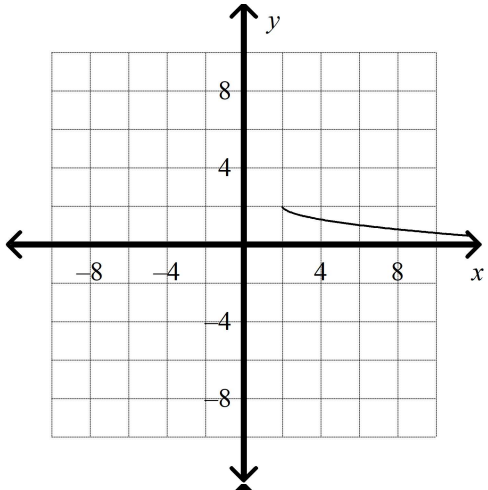


____ 25. $y = -0.5\sqrt{x - 2} + 2$

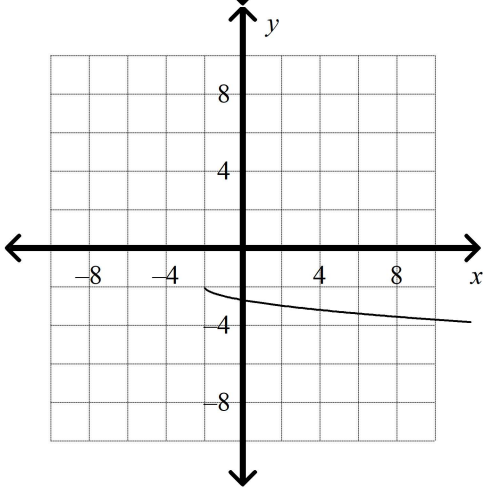
a.



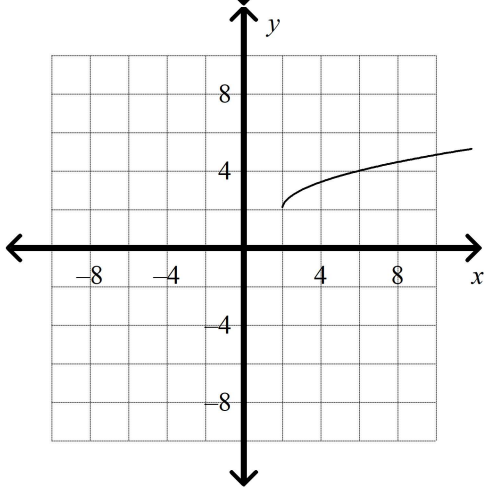
c.



b.



d.



Chapter 6 REVIEW
Answer Section

MULTIPLE CHOICE

1. ANS: A OBJ: 6-1.1 To find nth roots
2. ANS: C OBJ: 6-1.1 To find nth roots
3. ANS: C OBJ: 6-1.1 To find nth roots
4. ANS: A OBJ: 6-2.1 To multiply and divide radical expressions
5. ANS: A OBJ: 6-2.1 To multiply and divide radical expressions
6. ANS: B OBJ: 6-2.1 To multiply and divide radical expressions
7. ANS: A OBJ: 6-2.1 To multiply and divide radical expressions
8. ANS: C OBJ: 6-3.1 To add and subtract radical expressions
9. ANS: B OBJ: 6-3.1 To add and subtract radical expressions
10. ANS: A OBJ: 6-3.1 To add and subtract radical expressions
11. ANS: A OBJ: 6-3.1 To add and subtract radical expressions
12. ANS: A OBJ: 6-3.1 To add and subtract radical expressions
13. ANS: C OBJ: 6-4.1 To simplify expressions with rational exponents
14. ANS: B OBJ: 6-4.1 To simplify expressions with rational exponents
15. ANS: A OBJ: 6-4.1 To simplify expressions with rational exponents
16. ANS: A OBJ: 6-4.1 To simplify expressions with rational exponents
17. ANS: B OBJ: 6-5.1 To solve square root and other radical equations
18. ANS: A OBJ: 6-5.1 To solve square root and other radical equations
19. ANS: C OBJ: 6-5.1 To solve square root and other radical equations
20. ANS: A OBJ: 6-6.2 To find the composite of two functions
21. ANS: C OBJ: 6-6.2 To find the composite of two functions
22. ANS: A OBJ: 6-7.1 To find the inverse of a relation or function
23. ANS: D OBJ: 6-7.1 To find the inverse of a relation or function
24. ANS: B OBJ: 6-7.1 To find the inverse of a relation or function
25. ANS: C OBJ: 6-8.1 To graph square root and other radical functions