## Pre-Calculus 12 Chapter 2 Review

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

_____ 1. Which of the graphs shown below represents the base function $f(x) = \sqrt{x}$ and the stretched function $g(x) = -\frac{3}{2}\sqrt{x}$?

A
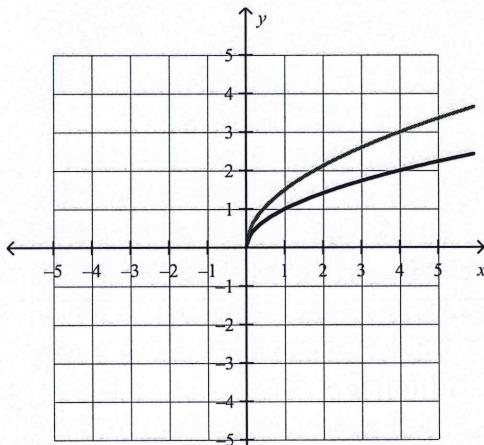
C
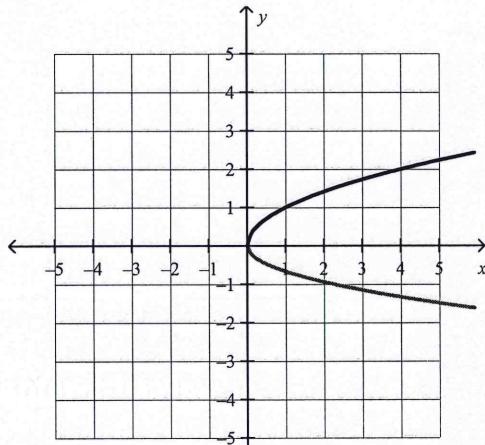
B
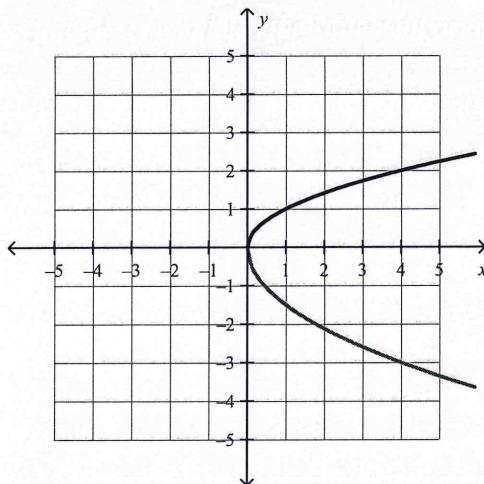
D
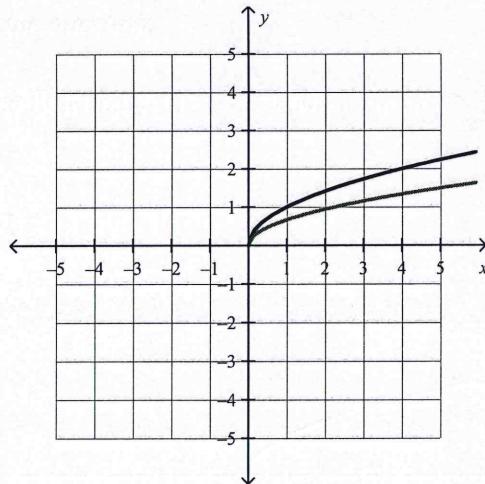
_____ 2. Given the function $f(x) = \sqrt{x - h} + k$ with a domain of $\{x \mid x \geq -5, x \in R\}$ and a range of $\{y \mid y \geq 8, y \in R\}$, which of the following best describes the vertical and horizontal translations with respect to the graph of $f(x) = \sqrt{x}$?

    A   5 units to the left and 8 units up   **C**   8 units to the left and 5 units up

    B   8 units to the left and 5 units down   **D**   5 units to the left and 8 units down

1

_____ 3. Compared to the graph of the base function $f(x) = \sqrt{x}$, the graph of the function $g(x) = \sqrt{x+8} - 4$ is translated

    A   4 units to the right and 8 units up   **C**   8 units to the left and 4 units down

    B   4 units to the left and 8 units down   **D**   8 units to the right and 4 units up

_____ 4. What is the equation of the radical function shown in the graph below?
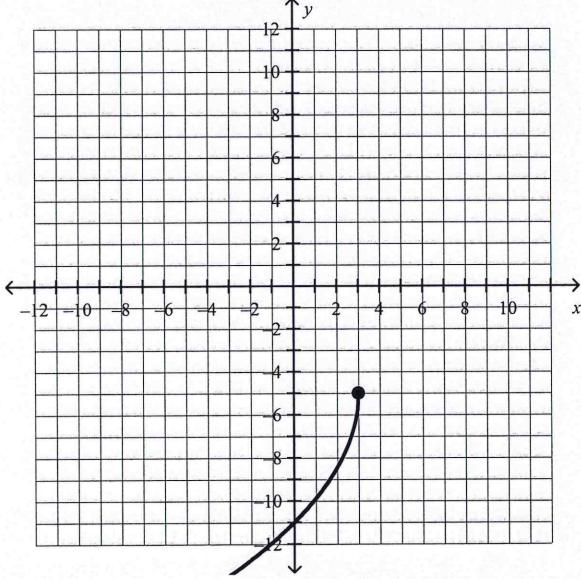
    A $f(x) = -2\sqrt{\dfrac{1}{-3}(x-5)} - 3$ **C** $f(x) = -2\sqrt{-3(x-3)} - 5$

    B $f(x) = -2\sqrt{-3(x+3)} - 5$ **D** $f(x) = -2\sqrt{\dfrac{1}{-3}(x-3)} - 5$

_____ **5.** What is the equation of the transformed function, $g(x)$, after the transformations are applied to the graph of the base function $f(x) = \sqrt{x}$ to obtain the graph of $g(x)$?
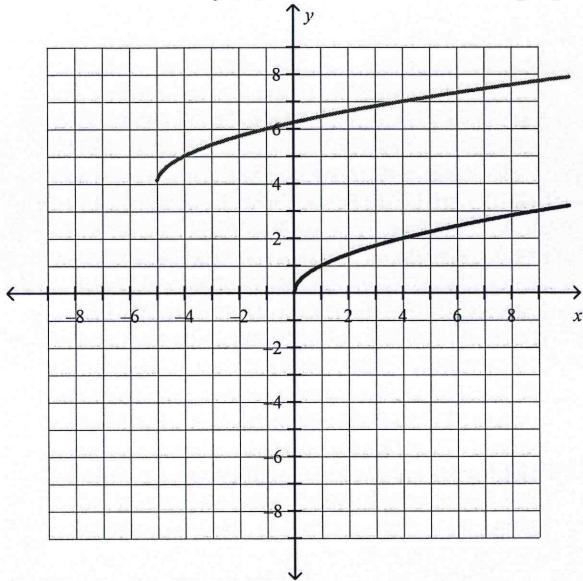

A $g(x) + 4 = \sqrt{x+4}$

B $g(x) = \sqrt{x+4} + 5$

C $g(x) + 5 = \sqrt{x+4}$

D $g(x) = \sqrt{x+5} + 4$

6. In the following graph, what transformations must be applied to $f(x) = \sqrt{x}$ to obtain $g(x)$?
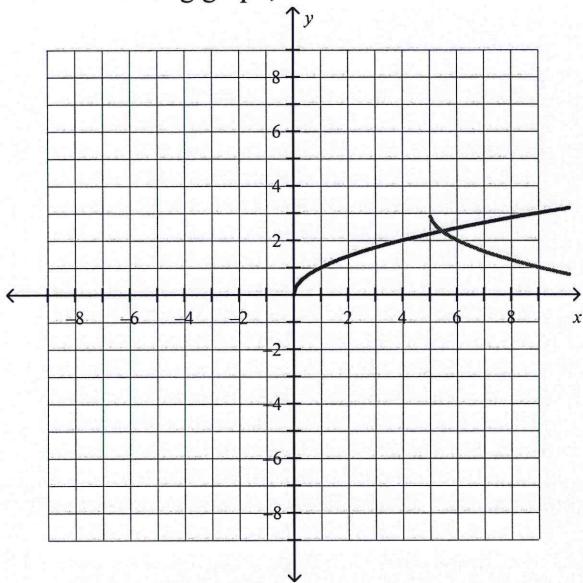
A   a reflection in the *x*-axis, a vertical translation 5 units up, and a horizontal translation 3 units to the right

B   a reflection in the *x*-axis, a vertical translation 5 units down, and a horizontal translation 3 units to the right

C   a reflection in the *x*-axis, a vertical translation 3 units up, and a horizontal translation 5 units to the left

D   a reflection in the *x*-axis, a vertical translation 3 units up, and a horizontal translation 5 units to the right

7. Which point on the graph $y = f(x)$ does not exist on the graph of $y = \sqrt{f(x)}$?

   A   (3,4)   C   (−8,−3)

   B   (−4,4)   D   (0.6,2.7)

8. Which of the graphs shown below represents the base function $f(x) = \sqrt{x}$ and the stretched function $g(x) = \sqrt{-9/5x}$?

A
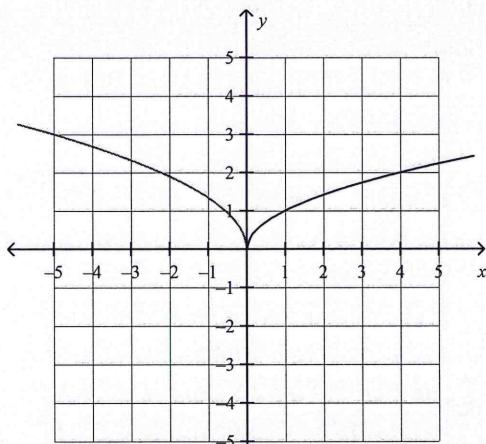
C
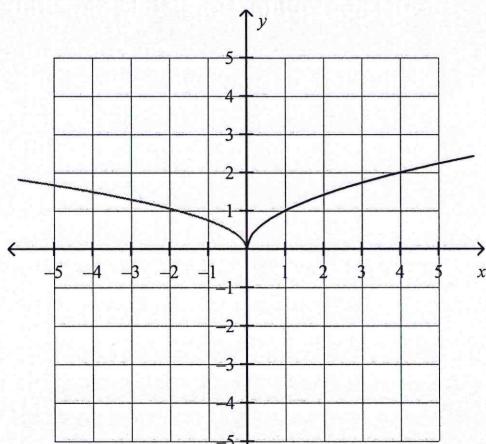
B
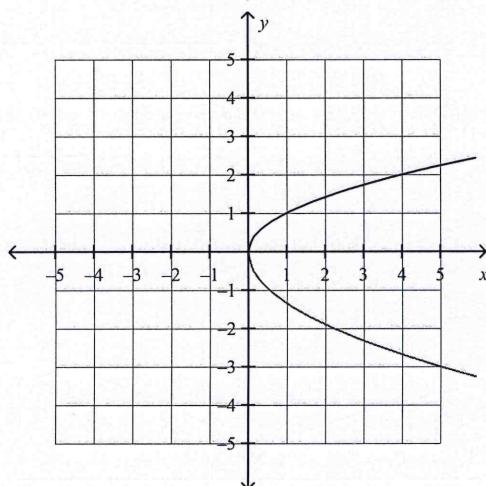
D
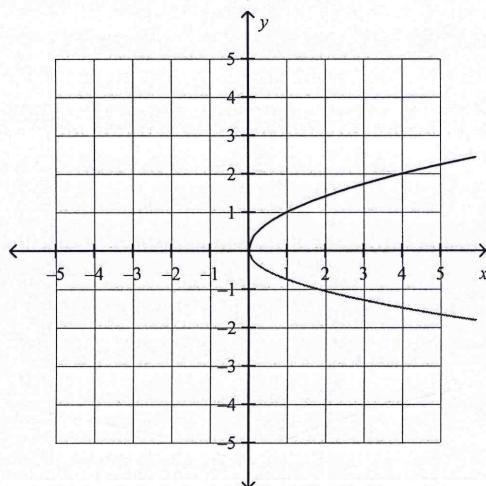
9. What are the coordinates of the invariant point(s) when the function $y = \sqrt{x} - 3$ is reflected in the y-axis?

|			
A	(9, –3)	C	(0, –3)
B	(–3, 0) and (9, 0)	D	(0, 9)

_____ **10.** Which is the graph of the square root of the function $f(x) = (x-5)^2 - 2$?

A
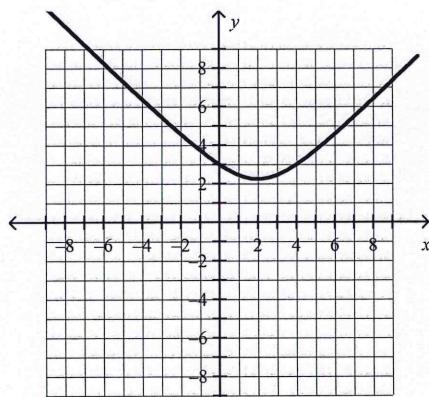
C
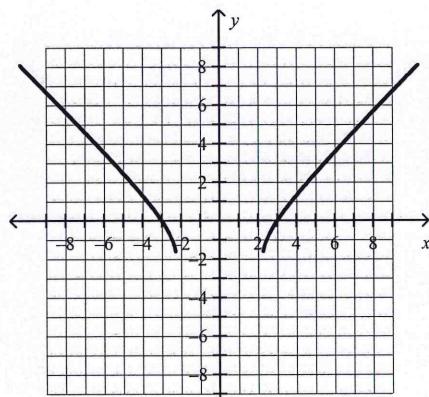
B
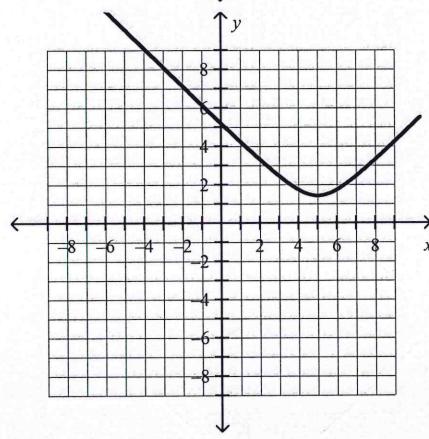
D
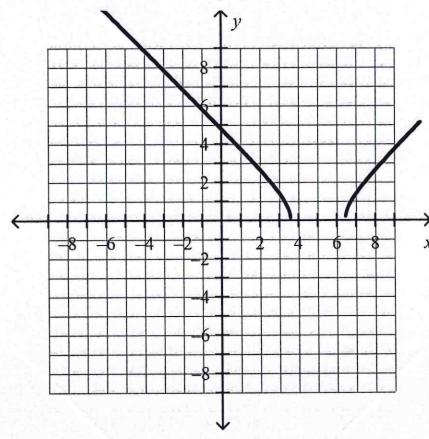
_____ **11.** Which graph represents the square root of the function shown in the graph?

A

C

B
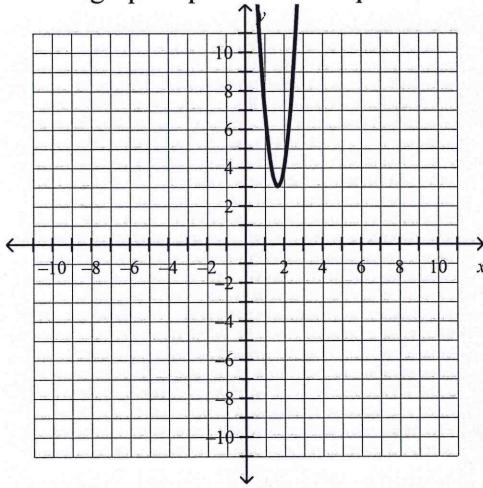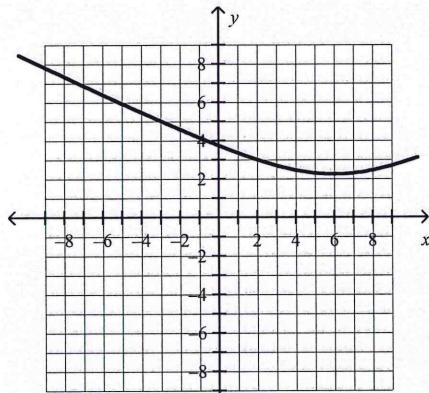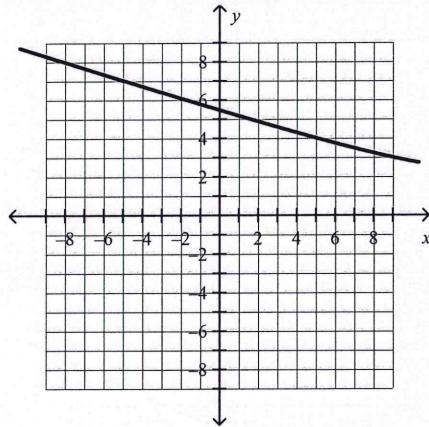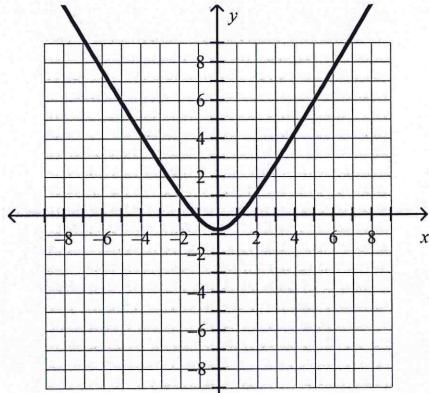
D
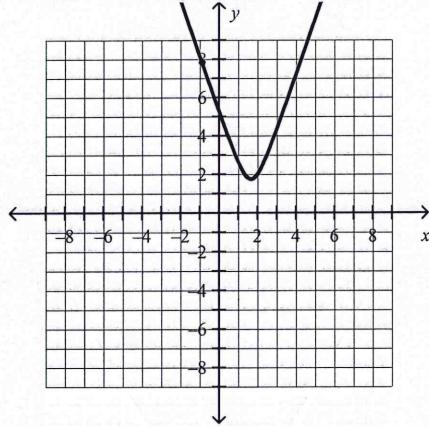
_____ **12.** Which graph represents the square root of the graph shown?
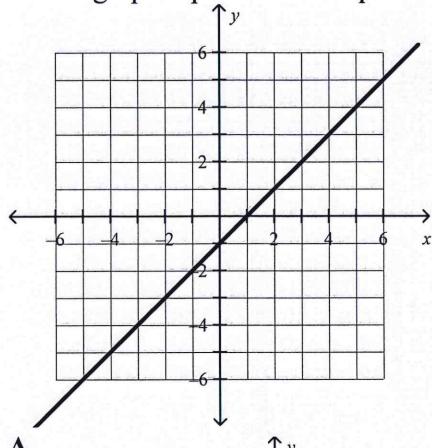
A
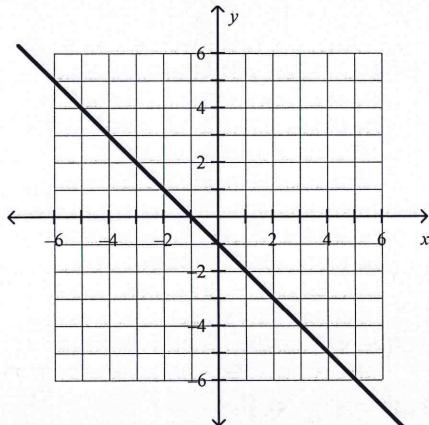
B
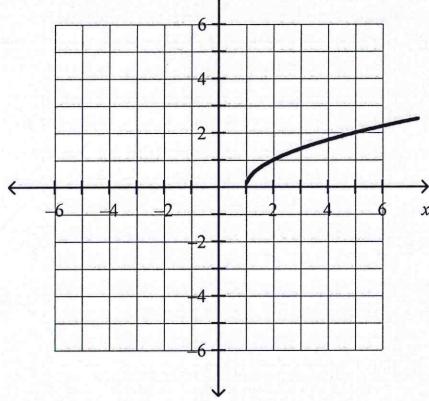
C
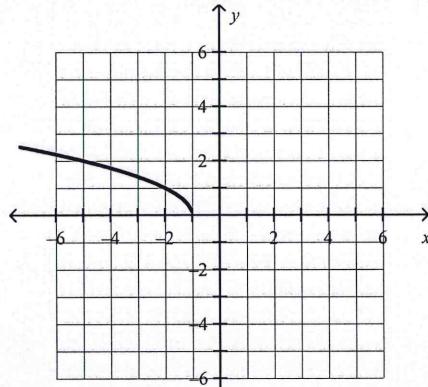
D
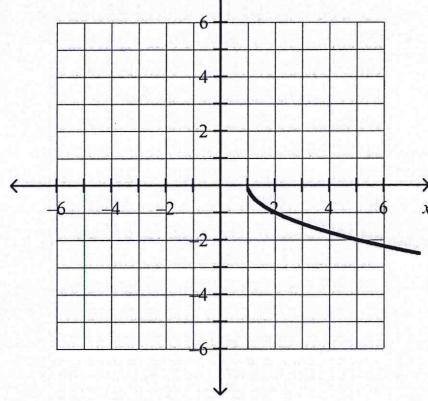
_____ **13.** Which graph represents the square root of the graph shown?

A

C

B
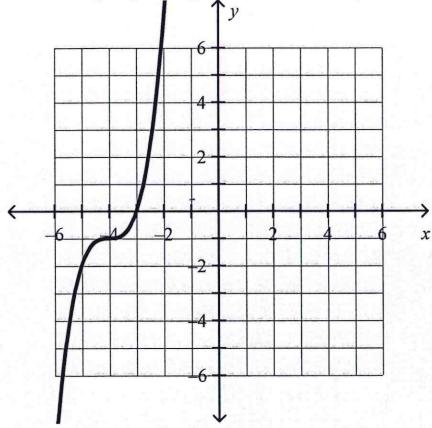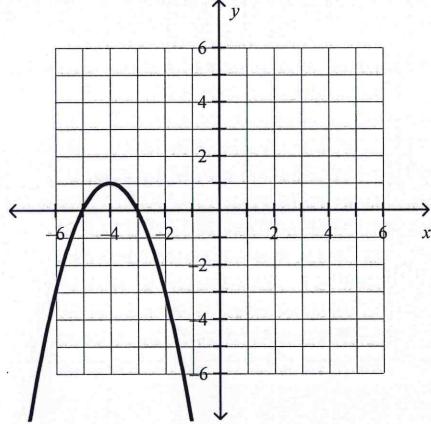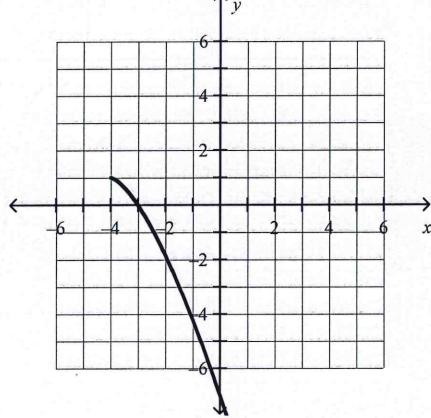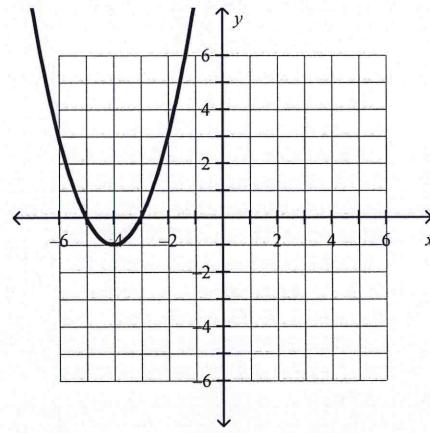
D
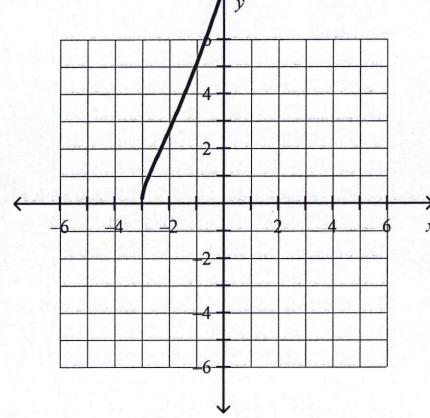
14. Which graph shows the graphical solution to the radical equation $0 = \sqrt{x + 8} - 3$?

A

(-1, 0)

C

(1, 0)

B

(1, 0)

D

(-1, 0)
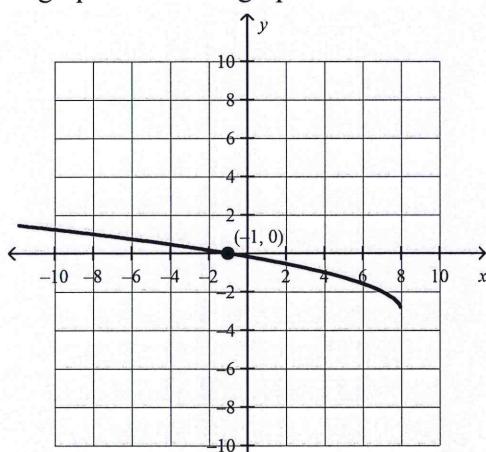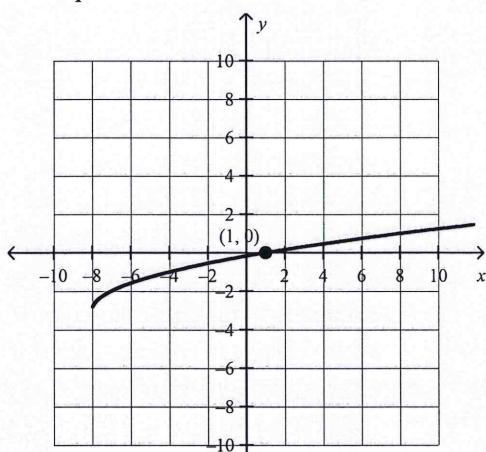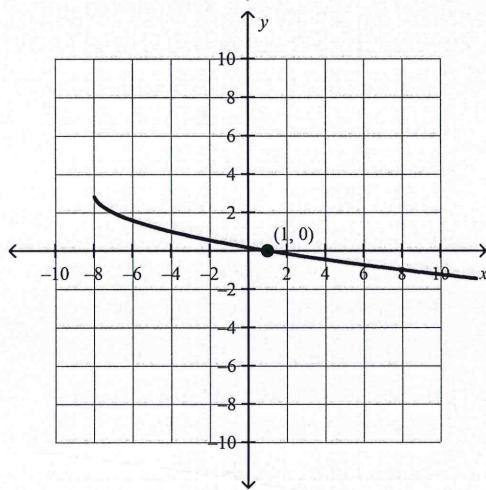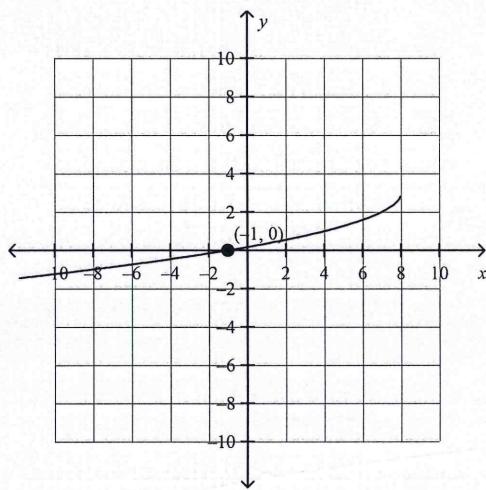
_____ **15.** Which graph shows the graphical solution to the radical equation $0 = 2\sqrt{(x-5)} - 2$?

A

(6, 0)

C

(−7, 0)

B

(−6, 0)

D

(6, 0)
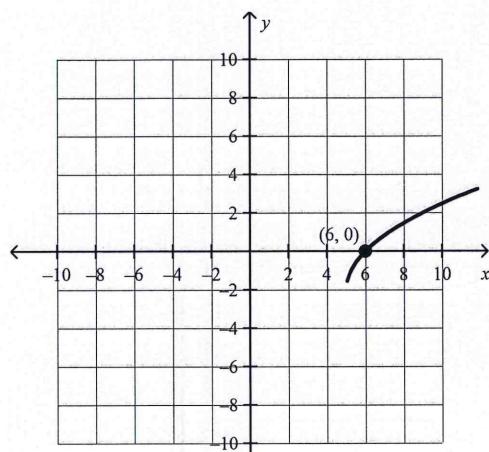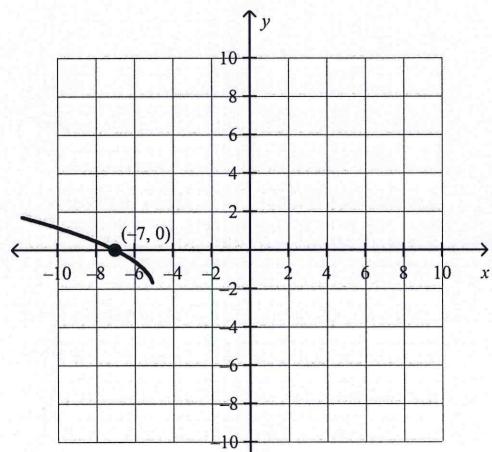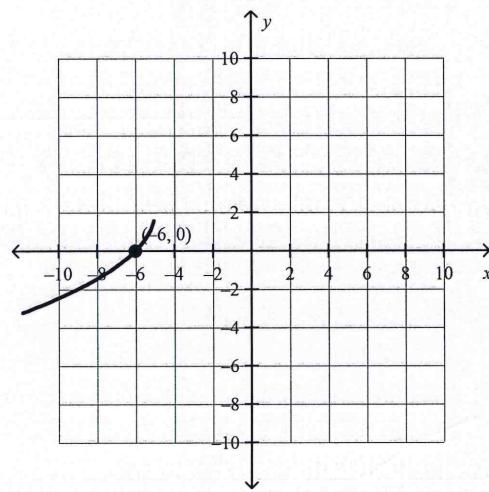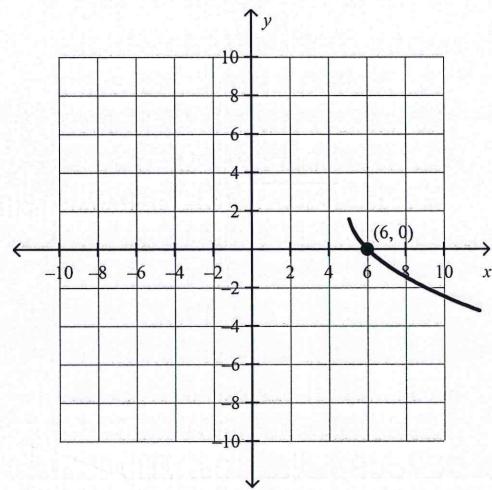
____ **16.** Which graph shows the solution to the radical equation $\sqrt{8-x} = x+4$?

A
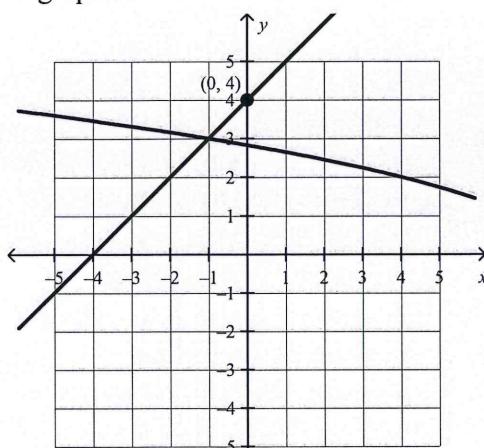
C
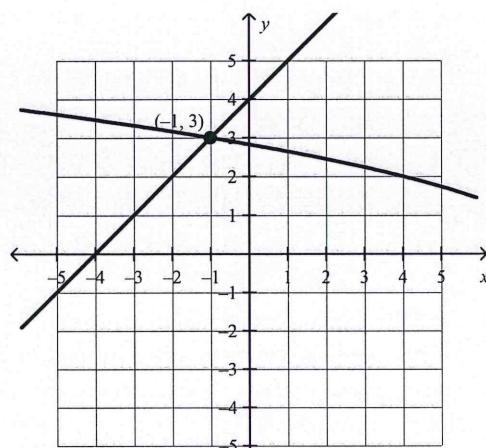
B
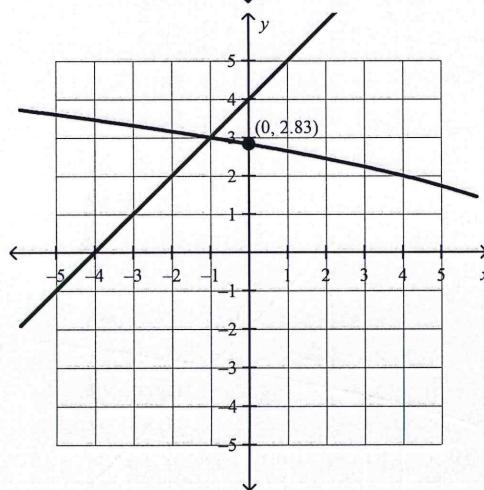
D
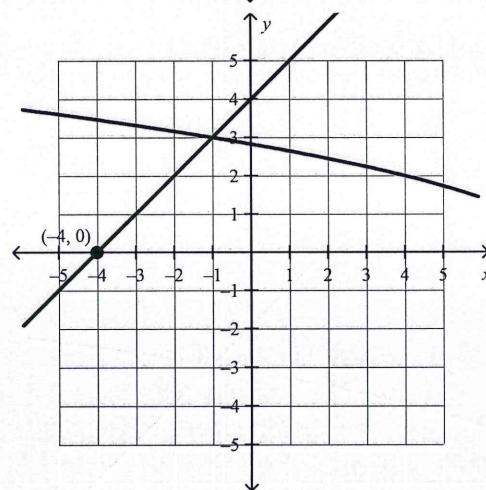
____ **17.** Which radical equation can be solved using the graph shown below?

A $-\sqrt{4-x} = x+2$

B $\sqrt{4-x} = x+2$

C $x+2 = -\sqrt{4+x}$

D $\sqrt{4+x} = x+2$
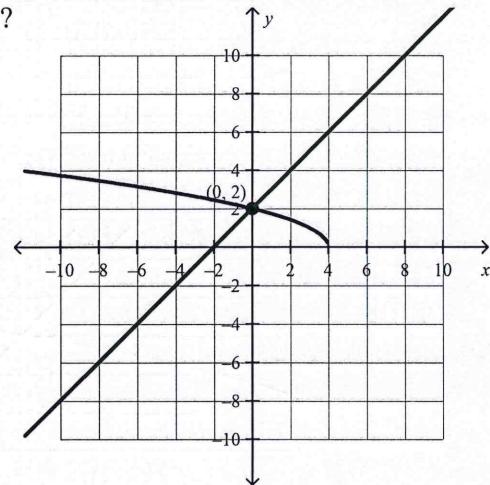
_____ **18.** Which graph shows the solution to the radical equation $-\sqrt{7-x} = -x-5$?

A
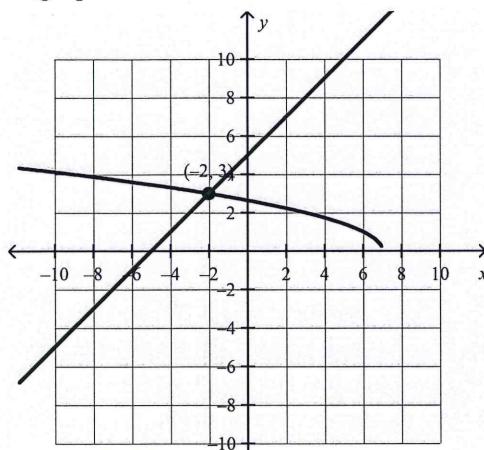
C
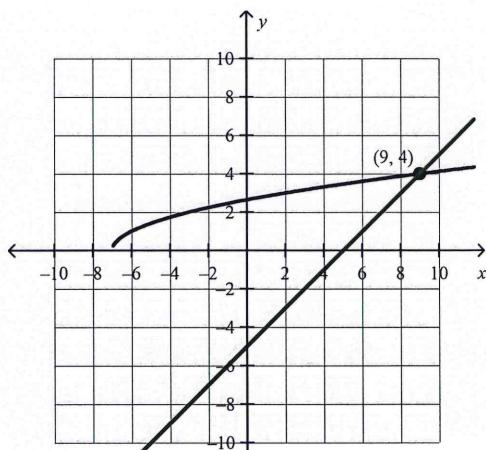
B
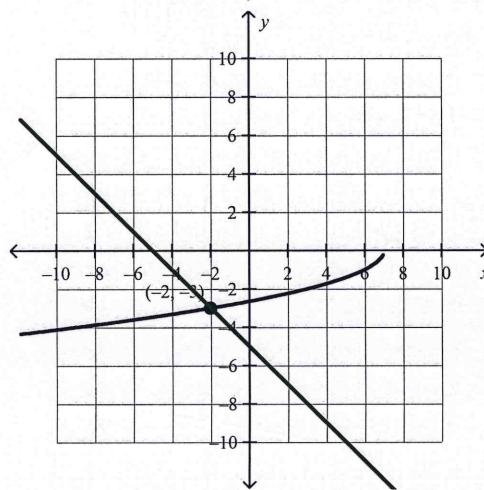
D
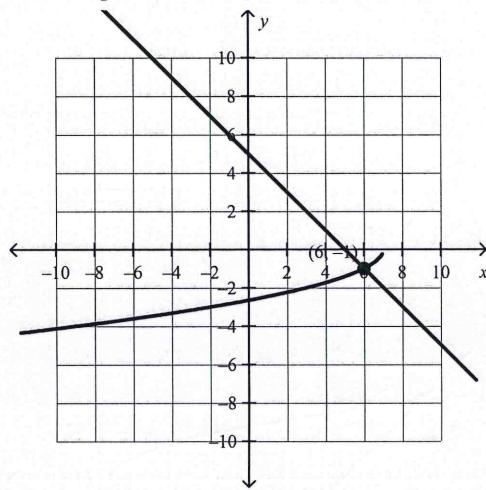
_____ **19.** When solving the equation $\sqrt{x+8} = x+6$, which values must be checked for extraneous roots?

   A   −4 and 7   **C**   8 and 6

   B   7 and −7   **D**   −4 and −7

_____ **20.** Which equation of a radical function would have the following domain and range?

$\{x \mid x \geq -6, x \in R\}; \{y \mid y \geq 10, x \in R\}$

   A $y = \sqrt{x-10} + 6$ **C** $y = \sqrt{x+6} - 10$

   B $y = \sqrt{x+6} + 10$ **D** $y = \sqrt{x+10} + 6$

Short Answer

   1. What is the solution to the radical equation $0 = 2\sqrt{2(x+4)} - 8$?

   **2.** Solve the equation $8 + \sqrt{x+5} = 1$ algebraically.

3. Solve the equation $\sqrt{x+5} = x+3$ algebraically.

4. Solve the equation $\sqrt{3x^2-5} = x+4$ algebraically to the nearest hundredth.

5. Solve the equation $\sqrt{3x^2-11} = x+1$ algebraically.

Pre-Calculus 12 Chapter 2 Review

Answer Section

MULTIPLE CHOICE

1. ANS: B   PTS: 1   DIF: Easy   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: graph | vertical stretch | reflection

2. ANS: A   PTS: 1   DIF: Average   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: horizontal translation | vertical translation

3. ANS: C   PTS: 1   DIF: Average   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: horizontal translation | vertical translation

4. ANS: C   PTS: 1   DIF: Difficult   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: horizontal translation | vertical translation | vertical stretch | horizontal stretch | graph | reflection

5. ANS: D   PTS: 1   DIF: Difficult   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: horizontal translation | vertical translation

6. ANS: D   PTS: 1   DIF: Average   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: graph | horizontal translation | vertical translation | reflection

7. ANS: C   PTS: 1   DIF: Easy   OBJ: Section 2.2
NAT: RF13   TOP: Square Root of a Function   KEY: domain | range

8. ANS: A   PTS: 1   DIF: Average   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: graph | horizontal stretch | reflection

9. ANS: C   PTS: 1   DIF: Difficult   OBJ: Section 2.1
NAT: RF13   TOP: Radical Functions and Transformations
KEY: invariant points

10. ANS: D   PTS: 1   DIF: Average   OBJ: Section 2.2
NAT: RF13   TOP: Square Root of a Function   KEY: graph

11. ANS: D   PTS: 1   DIF: Average   OBJ: Section 2.2
NAT: RF13   TOP: Square Root of a Function   KEY: graph

12. ANS: B   PTS: 1   DIF: Easy   OBJ: Section 2.2
NAT: RF13   TOP: Square Root of a Function   KEY: graph | square root of a function

13. ANS: D   PTS: 1   DIF: Average   OBJ: Section 2.2
NAT: RF13   TOP: Square Root of a Function   KEY: graph | square root | of a function

14. ANS: C   PTS: 1   DIF: Average   OBJ: Section 2.3
NAT: RF13   TOP: Solving Radical Equations Graphically
KEY: graphical solution

15. ANS: A   PTS: 1   DIF: Average   OBJ: Section 2.3
NAT: RF13   TOP: Solving Radical Equations Graphically
KEY: graphical solution

16. ANS: C   PTS: 1   DIF: Easy   OBJ: Section 2.3
     NAT: RF13   TOP: Solving Radical Equations Graphically
     KEY: graphical solution

17. ANS: B   PTS: 1   DIF: Easy   OBJ: Section 2.3
     NAT: RF13   TOP: Solving Radical Equations Graphically
     KEY: graphical solution

18. ANS: B   PTS: 1   DIF: Difficult   OBJ: Section 2.3
     NAT: RF13   TOP: Solving Radical Equations Graphically
     KEY: graphical solution

19. ANS: D   PTS: 1   DIF: Difficult   OBJ: Section 2.3
     NAT: RF13   TOP: Solving Radical Equations Graphically
     KEY: algebraic solution | extraneous roots

20. ANS: B   PTS: 1   DIF: Average   OBJ: Section 2.1
     NAT: RF13   TOP: Radical Functions and Transformations
     KEY: domain | range

SHORT ANSWER

1. ANS:
4

     PTS: 1   DIF: Difficult   OBJ: Section 2.3   NAT: RF13
     TOP: Solving Radical Equations Graphically   KEY: algebraic solution

2. ANS:
No solution

     PTS: 1   DIF: Difficult   OBJ: Section 2.3   NAT: RF13
     TOP: Solving Radical Equations Graphically   KEY: algebraic solution

3. ANS:
-1

     PTS: 1

4. ANS:
5.81 and -1.81

     PTS: 1

5. ANS:
3

     PTS: 1