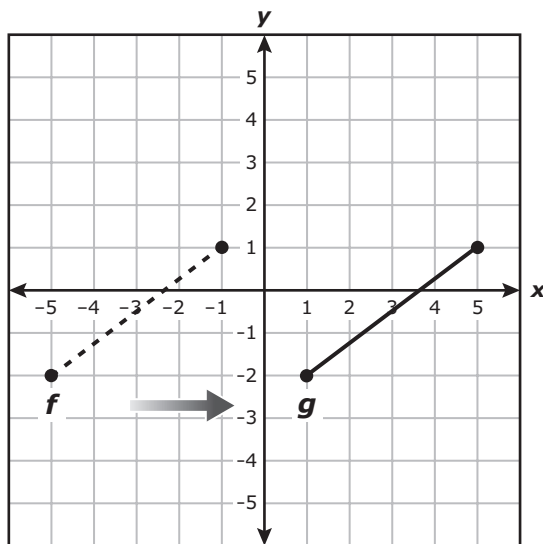


# Algebra II

**2011 Released Test Questions**

These released questions represent selected TEKS student expectations for each reporting category. These questions are samples only and do not represent all the student expectations eligible for assessment.

1



The graph of the function  $g$  was obtained from the graph of the function  $f$  using a transformation as shown above. Based on the graph, which equation can be used to describe  $g(x)$  in terms of  $f(x)$ ?

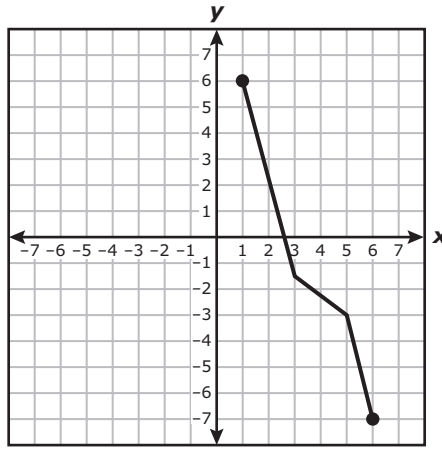
**A**  $g(x) = f(x) + 6$

**C**  $g(x) = f(x) - 6$

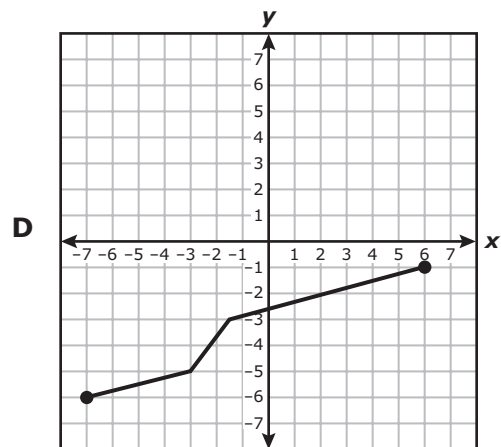
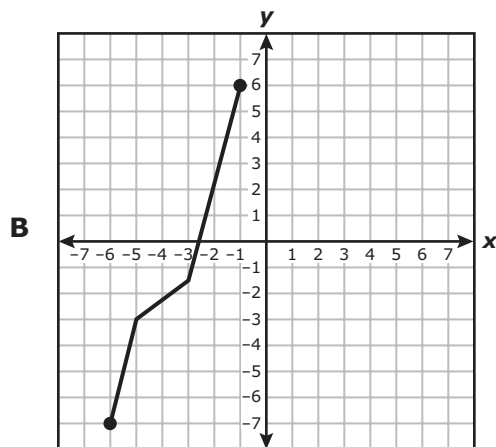
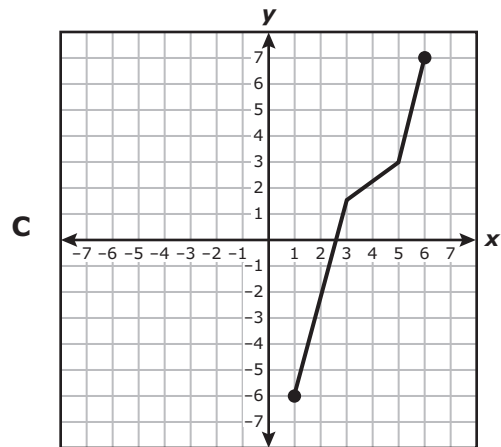
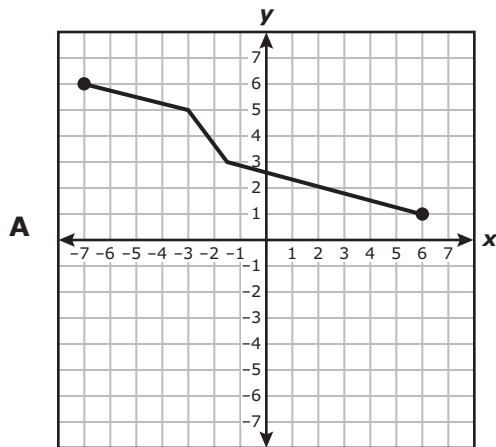
**B**  $g(x) = f(x + 6)$

**D**  $g(x) = f(x - 6)$

2 The graph of the function  $f$  is shown below.



Which grid shows the graph of  $f^{-1}$ ?



3 Given the equation  $\sqrt{\frac{x}{y}} = 4$ , which of the following represents  $y$  in terms of  $x$ ?

A  $y = \frac{x}{2}$

B  $y = \frac{2}{x}$

C  $y = \frac{x}{16}$

D  $y = \frac{16}{x}$

---

4 What is the  $y$ -value of the solution to the matrix equation below?

$$\begin{bmatrix} 3 & 2 \\ 2 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 3 \\ 4 \end{bmatrix}$$

A -6

B 14

C -5

D 12

5 Which of the following quadratic functions does not have zeros of  $-15$  and  $6$ ?

A  $f(x) = \frac{1}{3}x^2 + 3x - 30$

B  $f(x) = -x^2 - 9x + 90$

C  $f(x) = -\frac{2}{3}x^2 - 6x + 60$

D  $f(x) = -x^2 - 9x - 90$

---

6 The base of a triangle is 3 inches less than twice its height. If the area of the triangle is 126 square inches, which of the following equations can be used to find  $h$ , the height of the triangle in inches?

A  $2h^2 - 3h + 63 = 0$

B  $2h^2 - 3h - 63 = 0$

C  $2h^2 - 3h + 252 = 0$

D  $2h^2 - 3h - 252 = 0$

- 7 The table below shows ordered pairs that satisfy the quadratic function  $f$ .

$x$	$f(x)$
-2	31
-1	20
0	11
1	4
2	-1
3	-4
4	-5
5	-4

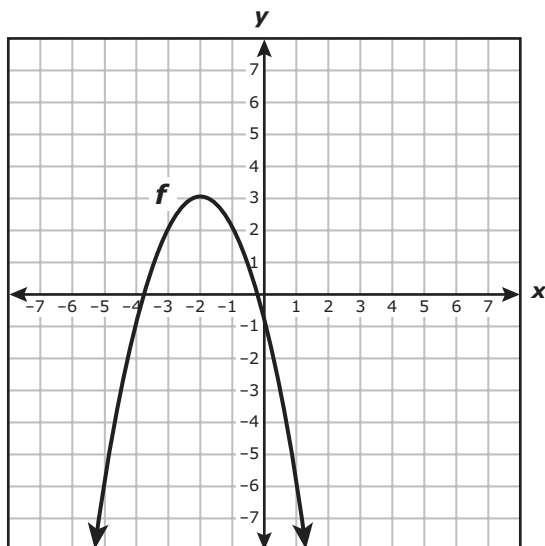
Based on the table, a solution to the equation  $f(x) = 0$  is found in which interval?

- A  $-2 < x < -1$                       C  $1 < x < 2$   
B  $-1 < x < 1$                       D  $3 < x < 5$

- 
- 8 Which figure best describes the graph of  $2x^2 + 5y^2 - 2x - 10y - 15 = 0$ ?

- A Circle  
B Ellipse  
C Parabola  
D Hyperbola

- 9 The graph of the quadratic function  $f$  is shown on the grid below.



If the graph of  $f$  is translated 5 units to the right and 4 units down to create a new graph, which function best represents this new graph?

- A**  $g(x) = -(x + 3)^2 - 1$   
**B**  $g(x) = -(x - 3)^2 - 1$   
**C**  $g(x) = (3 - x)^2 + 1$   
**D**  $g(x) = (3 - x)^2 - 1$

- 
- 10 What value of  $p$  is a solution to the equation below?

$$8\sqrt{p} - 1 = 3$$

Record your answer and fill in the bubbles on your answer document.

- 11** The formula  $P = 2\pi \sqrt{\frac{L}{32}}$  can be used to approximate the period of a pendulum, where  $L$  is the pendulum's length in feet and  $P$  is the pendulum's period in seconds. If a pendulum's period is 1.6 seconds, which of the following is closest to the length of the pendulum?
- A** 1.4 ft
  - B** 4.2 ft
  - C** 2.1 ft
  - D** 3.2 ft

- 
- 12** A chemical compound's concentration in milligrams per liter during a reaction can be modeled by the function below, where  $t$  represents the number of seconds that have elapsed during the reaction.

$$f(t) = \frac{100}{t^2 + 1}$$

In this situation, what are the domain and range for this function?

- A** Domain:  $t \geq 0$ ; range:  $0 < f(t) \leq 100$
- B** Domain:  $t \geq 0$ ; range:  $f(t) \geq 100$
- C** Domain:  $t \leq 0$ ; range:  $0 < f(t) \leq 100$
- D** Domain:  $t \leq 0$ ; range:  $f(t) \geq 100$



- 13** A monthly cell phone plan charges \$5.00 for the first 300 text messages used and \$0.15 for each additional message. On this plan, what is the number of text messages that must be used in a month in order to make the average cost per message \$0.05?
- A** 400
  - B** 350
  - C** 900
  - D** 500
- 

- 14** Which function is the inverse of  $f(x) = 2^x + 1$ ?

- A**  $g(x) = \log_2(x - 1)$
  - B**  $g(x) = \log_2(x) - 1$
  - C**  $g(x) = \log_2(x + 1)$
  - D**  $g(x) = \log_2(x) + 1$
- 

- 15** A family spent a total of \$1946 on fast food this year. If this family decreases the amount it spends on fast food by 3% every year, which of the following is closest to the annual amount the family will spend on fast food after 5 years?

- A** \$1888
- B** \$1671
- C** \$1931
- D** \$1654

Item Number	Reporting Category	Readiness or Supporting	Content Student Expectation	Correct Answer
1	1	Readiness	A.4(B)	D
2	1	Supporting	A.4(C)	A
3	2	Supporting	A.2(A)	C
4	2	Readiness	A.3(B)	A
5	3	Supporting	A.6(C)	D
6	3	Readiness	A.8(A)	D
7	3	Readiness	A.8(D)	C
8	4	Supporting	A.5(D)	B
9	4	Supporting	A.7(B)	B
10	5	Supporting	A.9(D)	0.25
11	5	Readiness	A.9(F)	C
12	6	Supporting	A.10(C)	A
13	6	Readiness	A.10(F)	A
14	7	Readiness	A.11(A)	A
15	7	Readiness	A.11(F)	B

For more information about the new STAAR assessments, go to [www.tea.state.tx.us/student.assessment/staar/](http://www.tea.state.tx.us/student.assessment/staar/).