

Oklahoma School Testing Program



Oklahoma Core Curriculum Tests

2009–2010 Released Items

End-of-Instruction
ACE Algebra II

Oklahoma State Department of Education
Oklahoma City, Oklahoma



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Section 1

Section 1

Directions

Read each question and choose the best answer.

1 What is $\sqrt[4]{16p^3q^8}$ in simplified exponential form?

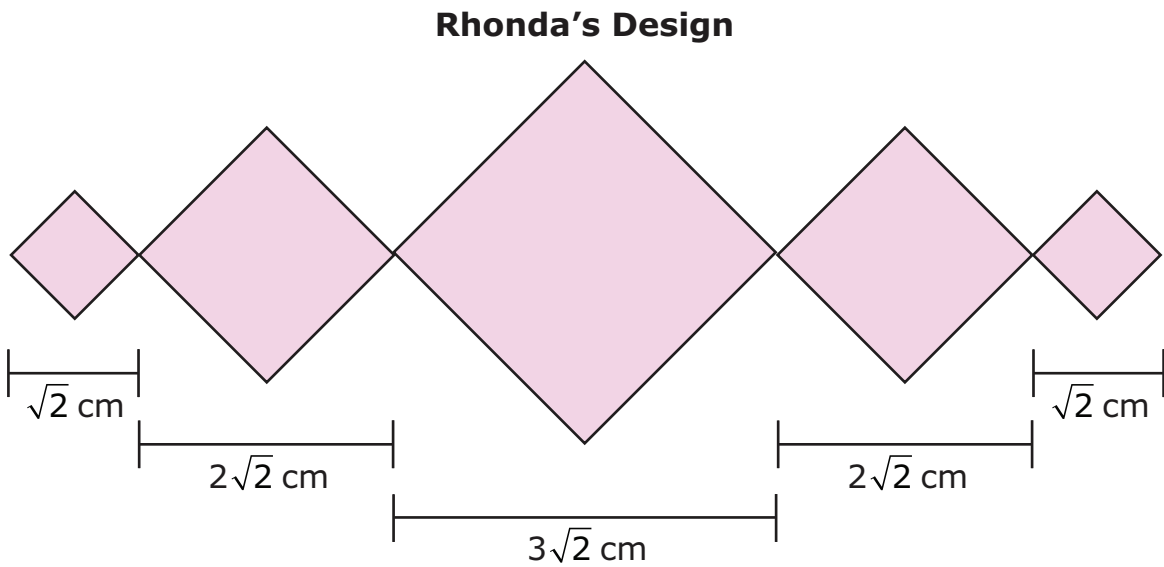
A $2p^{\frac{3}{4}}q^2$

B $4p^{\frac{3}{2}}q^4$

C $2p^6q^{16}$

D $4p^{12}q^{32}$

- 2 Rhonda created this design for her class.



What is the total length in centimeters of the design?

- F** $7\sqrt{2}$ cm
- G** $9\sqrt{2}$ cm
- H** $7\sqrt{10}$ cm
- J** $9\sqrt{10}$ cm

Section 1

3 What is the quotient of $5y^3 + 2y - 8$ divided by $y - 1$?

A $5y + 8$

B $5y^3 + y - 7$

C $5y^2 + 2 + \frac{-8}{y - 1}$

D $5y^2 + 5y + 7 + \frac{-1}{y - 1}$

4 Which expression is equivalent to $\frac{2x + 6}{x - 1} \cdot \frac{x - 8}{x^3 + 3x^2}$?

F $\frac{3x - 2}{x^3 + 3x^2 + x - 1}$

G $\frac{2x^2(x + 3)^2}{(x - 1)(x - 8)}$

H $\frac{-5x - 24}{x^4 + x^3 - x^2}$

J $\frac{2x - 16}{x^3 - x^2}$

5 What is the product of $(-4 + 3i)$ and $(6i)$?

- A -42
- B $-21i$
- C $-4 + 18i$
- D $-18 - 24i$

6

$$\frac{1}{3 - i}$$

Which of the following represents this expression in simplest form?

- F $\frac{3 + i}{8}$
- G $\frac{3 + i}{10}$
- H $\frac{2}{5}i$
- J $\frac{3}{10} + i$

Section 1

7 If $f(x) = 2x - 3$ and $g(x) = x - 5$, which equation corresponds to the function $(f - g)(x)$?

A $(f - g)(x) = x + 2$

B $(f - g)(x) = x - 8$

C $(f - g)(x) = -x - 2$

D $(f - g)(x) = 3x - 8$

8

$$f(x) = x^2 + x$$

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

Which expression represents $(f \circ g)(x)$?

F $\sqrt{x^2 + x + 1}$

G $x + 1 + \sqrt{x + 1}$

H $\sqrt{x^2 + 1} + \sqrt{x + 1}$

J $(x^2 + x)(\sqrt{x + 1})$

Section 1

9

$$\begin{cases} 2x - 3y = 3 \\ 5x + 2y = 17 \end{cases}$$

What is the solution to this system of equations?

- A (-1,3)
- B (3,1)
- C (-3,1)
- D (1,3)

10

$$x^2 + 12x + \underline{\quad} = -5 + \underline{\quad}$$

In solving $x^2 + 12x + 5 = 0$ by completing the square, which number is added to both sides of the equation?

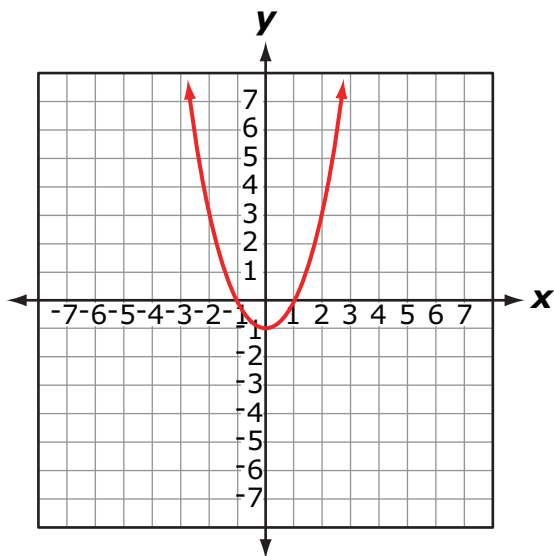
- F 6
- G 36
- H 72
- J 144

11

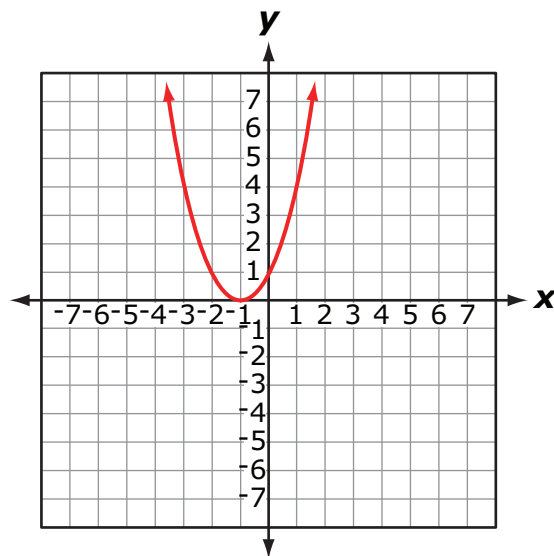
$$f(x) = x^2 - 2x + 1$$

Which graph represents this function?

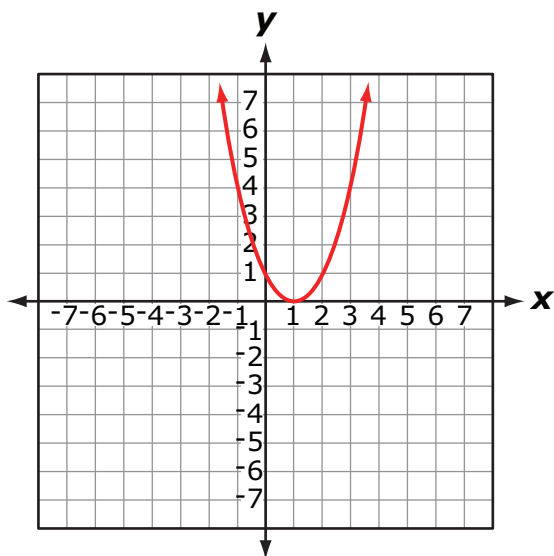
A



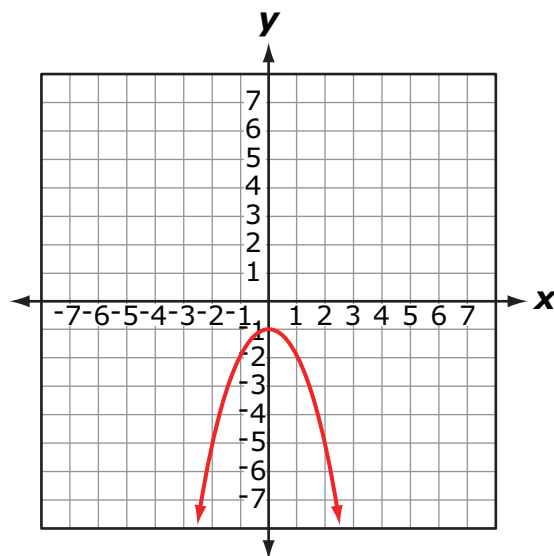
B



C



D



Section 1

12 Which equation represents a parabola that opens up with the vertex at $(2, 4)$?

F $y = x^2 - 4$

G $y = x^2 + 4$

H $y = x^2 + 4x + 8$

J $y = x^2 - 4x + 8$

13 What is the value of x for $\log_3(5x + 7) = 2$?

A $-1\frac{4}{15}$

B $\frac{1}{5}$

C $\frac{2}{7}$

D $\frac{2}{5}$

14 Which table correctly shows values for the function $y = 2^x$?

F

x	y
1	0
2	1
4	2
8	3
16	4
32	5

G

x	y
0	1
1	2
2	4
3	8
4	16
5	32

H

x	y
0	0
1	1
2	4
3	8
4	16
5	32

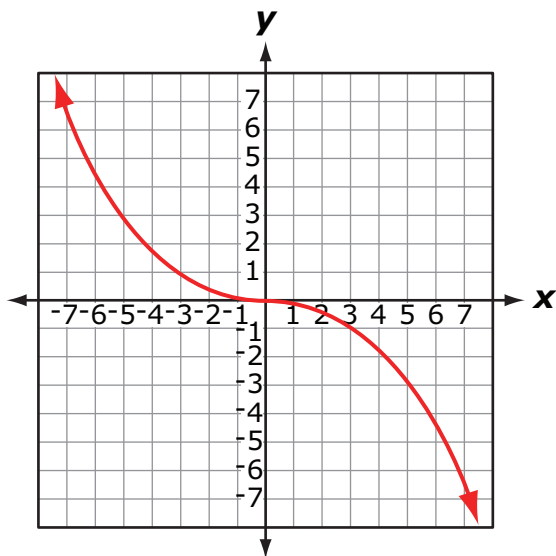
J

x	y
0	0
1	1
2	2
3	3
4	4
5	5

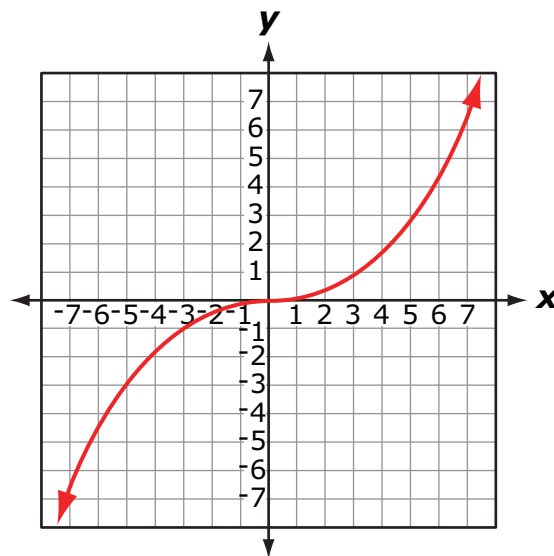
Section 1

15 Which graph corresponds to the equation $y = x^4 - 6x^2 + 4$?

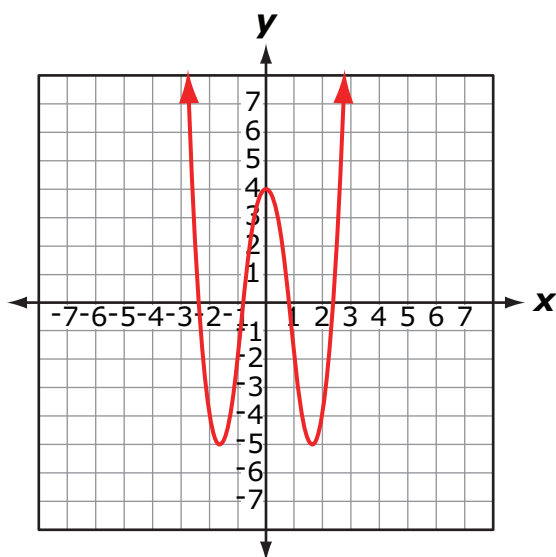
A



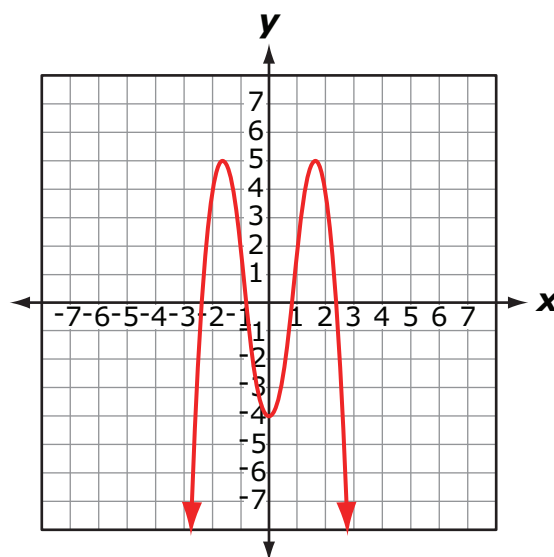
B



C



D



- 16 The path of a ball thrown by a child is described by this function.

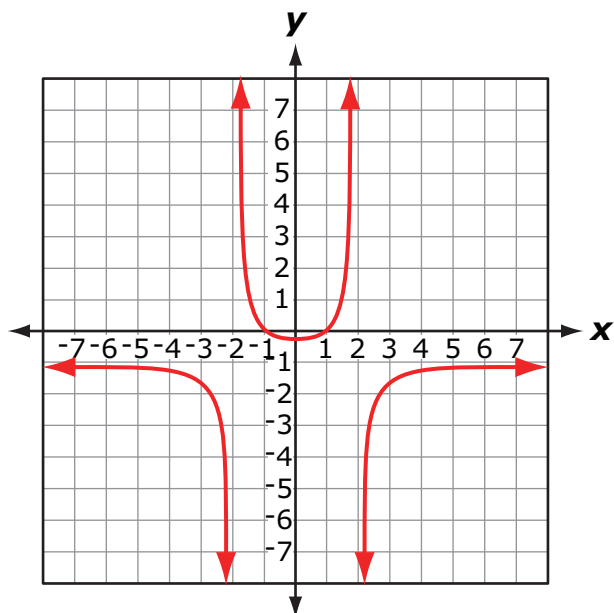
$$y = -\frac{1}{12}x^2 + 2x + 4$$

In this function, x is the horizontal distance (in feet) of the path, and y is the height (in feet) of the path. Which of these is needed to find the distance from the child to where the ball strikes the ground?

- F x -intercept
- G y -intercept
- H relative maximum
- J relative minimum

Section 1

17



What are the vertical and horizontal asymptotes of the function

$$f(x) = \frac{1 - x^2}{x^2 - 4}?$$

- A $x = \pm 2$ and $y = 1$
- B $x = \pm 2$ and $y = -1$
- C $x = 1$ and $y = \pm 2$
- D $x = -1$ and $y = \pm 2$

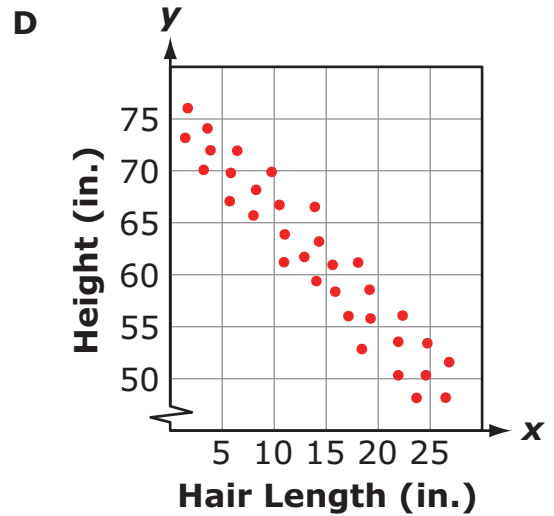
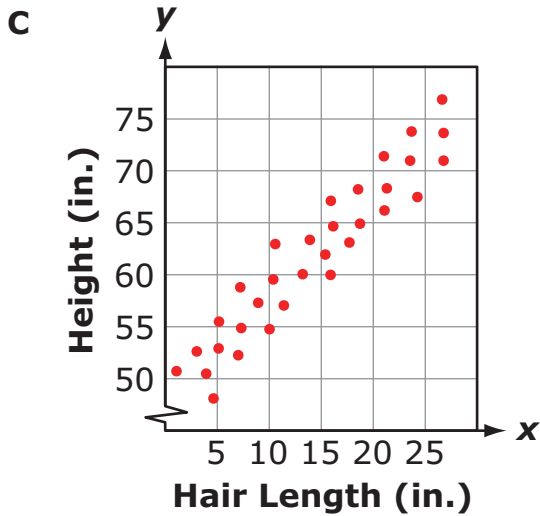
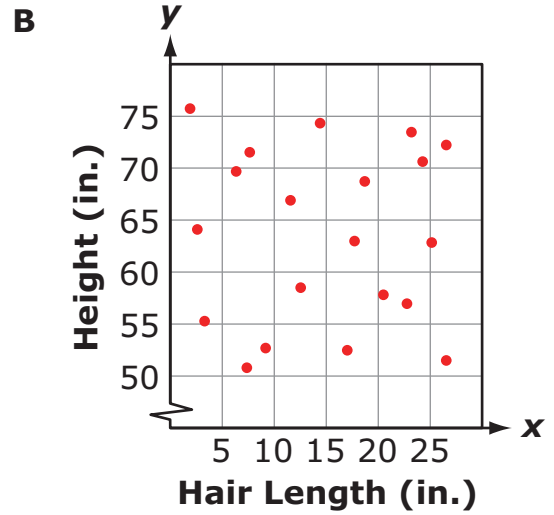
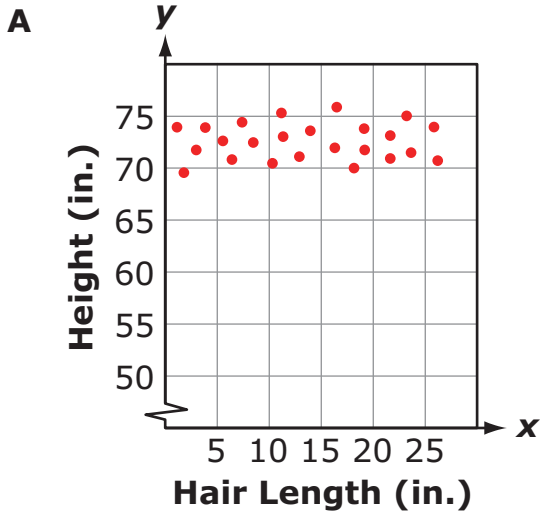
- 18** Foxes were released into a national park. The population, P , of the group is given by the equation $P = \frac{20(5 + 3t)}{1 + 0.04t}$, where t is the number of years after the release.

What is the population of foxes after 50 years?

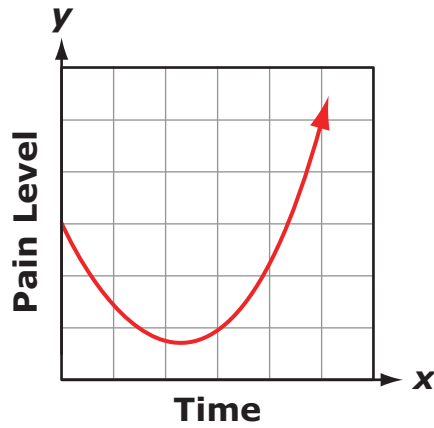
- F** 357 foxes
- G** 1,033 foxes
- H** 1,986 foxes
- J** 3,100 foxes

Section 1

19 Which graph best represents no correlation between the length of a person's hair and the person's height?



- 20 A patient was given medicine for pain. The graph represents the level of pain as a function of time after taking the medicine.



Which type of function best models the pain level as a function of time?

- F linear
- G quadratic
- H logarithmic
- J exponential

$-10, -4.5, 1, 6.5, \dots$

What is the sum of the first 10 terms in this sequence?

Arithmetic Sequences & Series

$$n^{\text{th}} \text{ term: } a_n = a_1 + (n-1)d$$

$$\text{Sum: } s_n = \frac{n}{2}(a_1 + a_n)$$

Geometric Sequences & Series

$$n^{\text{th}} \text{ term: } a_n = a_1 r^{(n-1)}$$

$$\text{Sum: } s_n = \frac{a_1(1-r^n)}{(1-r)}$$

- A 14.5
- B 39.5
- C 49.5
- D 147.5

- 22 Which of these could represent the common ratio of a geometric sequence in which $a_2 = 16$ and $a_4 = 4$?

Arithmetic Sequences & Series

$$n^{\text{th}} \text{ term: } a_n = a_1 + (n-1)d$$

$$\text{Sum: } s_n = \frac{n}{2}(a_1 + a_n)$$

Geometric Sequences & Series

$$n^{\text{th}} \text{ term: } a_n = a_1 r^{(n-1)}$$

$$\text{Sum: } s_n = \frac{a_1(1-r^n)}{(1-r)}$$

- F** $\frac{1}{4}$
- G** $\frac{1}{2}$
- H** 2
- J** 4

Section 1

Use the information below to answer Numbers 23, 24, and 25.

The functions $f(x)$ and $g(x)$ are shown.

$$f(x) = x^2 + 12x - 45$$

$$g(x) = 2x^2 - 18$$

23 Which expression is equivalent to $\frac{g(x)}{f(x)}$?

A $\frac{2x + 6}{x + 15}$

B $\frac{2x + 2}{x + 5}$

C $\frac{2x - 6}{x + 15}$

D $\frac{2x - 2}{x + 5}$

Use the information below to answer Numbers 23, 24, and 25.

The functions $f(x)$ and $g(x)$ are shown.

$$f(x) = x^2 + 12x - 45$$

$$g(x) = 2x^2 - 18$$

24

$$j(x) = \frac{f(x)}{g(x)}$$

What is the domain of $j(x)$?

- F $\{x : x \neq -3\}$
- G $\{x : x \neq \pm 3\}$
- H $\{x : x \neq -3, -15\}$
- J $\{x : x \neq \pm 3, -15\}$

25 Which set of ordered pairs contains the coordinates of the intersections of the graphs of $f(x)$ and $g(x)$?

- A $\{(-9, -72), (-3, -72)\}$
- B $\{(-9, 144), (-3, 0)\}$
- C $\{(-3, 0), (3, 0)\}$
- D $\{(3, 0), (9, 144)\}$





STOP

END OF SECTION 1

