# Rockswold College Algebra & Trigonometry Chapter 1 Test–Form A

1.	Let a function $f$ be represented symbolically	by $f(x)$	$= 8 - x^2$ . Find $f(-1)$ .	1
	(A) 9	(B)	10	
	(C) 7	(D)	-6	
2.	Determine which set of ordered pairs does <b>n</b>	ot repres	ent a function.	2
	$(A)  \{(1,1), (0,2), (1,3), (0,2)\}$	(B)	$\{(1, 1), (2, 2), (3, 3), (4, 2)\}$	
	(C) { $(1, 4), (2, 3), (3, 1), (4, 1)$ }	(D)	$\{(1, 1), (2, 0), (3, 1), (4, 0)\}$	
3.	Use the graph of $f$ to determine its domain.			3
	y.			
		(A)	$\left[-1,\infty ight)$	
		(B)	[-1,2)	
	-5 5 x	(C)	[−2,∞)	
		(D)	$(-\infty,\infty)$	
4.	Lake Buchanan, one of the Highland lakes lo	ocated in	central Texas, covers	4.
	$1.12 \times 10^8$ square feet and contains a total voo of water. Find the average depth of Lake Bu	olume of chanan.	$4.10 \times 10^9$ cubic feet	
	(A) 3.66 feet	(B)	366 feet	
	(C) $3.66 \times 10^{-1}$ feet	(D)	36.6 feet	
5.	If possible, find the slope of the line passing	through	(-2.8, 6.3) and (-4.3, 1.5).	5
	(A) 0.3125	(B)	-3.2	
	(C) undefined	(D)	3.2	
6.	The table displays the monthly rainfall for H	lilo, Hawa	aii, for the first six months	6

6. The table displays the monthly rainfall for Hilo, Hawaii, for the first six months in a typical year. Find the mean rainfall to the nearest tenth of an inch for these six months.

	Month	Jan	Feb	Mar	Apr	May	Jun
Ra	infall (inches)	26.1	19.0	10.8	7.4	15.0	7.2
(A)	12.9 in.			(E	B) 14.3	in.	
(C)	18.7 in.			(E	<b>D</b> ) 85.5	in.	

7. Use the graph of f to evaluate f(-2). 7. -1 (A) (B) 2.5 3 (C) (D) -4.88. Find the domain of  $f(x) = \frac{1}{\sqrt{x-4}}$ . 8. \_\_\_\_\_ (A) x = 4(B) (4,∞)  $(-\infty,4)\cup(4,\infty)$  $(-\infty, 4)$ (D) (C) 9. Find the midpoint of the line segment joining the points (5.3, -6.1) and (-2.8, 1.1). 9. \_\_\_\_ (A) (1.25, -2.5)(B) (4.05, -3.6)(C) (-0.4, -0.85)(5.7, -195)(D) 10. Find the equation of the circle. 10. \_\_\_\_\_ (A)  $(x-2)^2 + (y+1)^2 = 4$ (B)  $(x+2)^2 + (y-1)^2 = 16$ (C)  $(x+2)^2 + (y-1)^2 = 4$ (D)  $(x-2)^2 + (y+1)^2 = 16$ 11. Find the distance between the points (12.1, 13.5) and (-5.6, -10.1) to the nearest tenth. 11. \_\_\_\_\_ 53.8 29.5 (A) (B) (C) 41.3 (D) 9.9 12. Find the domain and range of the relation 12.  $S = \{(-5.2, 1.6), (3.5, -2.9), (-4.9, 3.2), (6.5, -1.0), (-2.1, 6.1)\}.$ (A)  $D = \{-5.2, 1.6, 3.5, -2.9, -4.9\}$ (B)  $D = \{1.6, -2.9, 3.2, -1.0, 6.1\}$  $R = \{3.2, 6.5, -1.0, -2.1, 6.1\}$  $R = \{-5.2, 3.5, -4.9, 6.5, -2.1\}$  $D = \{-1.5, -6.0, 1.2, 9.4, 1.7\}$ (D)  $D = \{-5.2, 3.5, -4.9, 6.5, -2.1\}$ (C)  $R = \{4.9, -1.4, -6.2, 1.2, 4.1\}$  $R = \{1.6, -2.9, 3.2, -1.0, 6.1\}$ 

2

14.

13. \_\_\_\_ 13. In 2000 the population of Juneau, Alaska was 30,711 and in 2010 it was 31,275 Use the midpoint formula to estimate Juneau's population in 2005. 30,183 (B) 30,311 (A) 30,993 (C) 30,366 (D)

14. The data displayed in the table are linear. State the slope m of the line passing through the data points.

				_	_	-
X	-1	0	1	2	3	_
Y	-8	-5	-2	1	4	
(A)	<i>m</i> = -3				(B)	$m = \frac{1}{3}$
(C)	<i>m</i> = 3				(D)	$m = -\frac{1}{3}$

15. Which of the following is **not** the graph of a function?



- 16. Write a symbolic representation (formula) of a function g that computes the number of dollars in x dimes.
  - (A)  $g(x) = \frac{x}{10}$ g(x) = 10x(B) 10

(C) 
$$g(x) = \frac{x}{0.10}$$
 (D)  $g(x) = \frac{10}{x}$ 

- 17. The function *P* defined by
- $P(t) = t^2 + 4t + 33$

models the number of diagnostic machines produced by a medical equipment manufacturer yearly, where t = 0 corresponds to the first year of production, 2000. Find the average rate of change in the number of machines produced per year between 2005 and 2010.

- 25 machines/year 17 machines/year (A) (B) (C) 19 machines/year
  - (D) 40 machines/year

3

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15. \_\_\_\_

16. \_\_\_\_

18. Plot the relation  $\{(-3, 1), (2, 1), (5, -3)\}$  in the *xy*-plane.



19. The table shows the Pizzazz-Zee corporation's monthly income for the first 6 months of last year in thousands of dollars. Find its median monthly income for this period to the nearest thousand dollars.

Mor	nth	Jan	Feb	Mar	Apr	May	Jun
Inco	ome	32	312	92	212	272	188
(A)	\$185,000				(B) \$5	554,000	
(C)	\$200,000				(D) \$2	280,000	

20. Use the graph to determine the intervals on which f is increasing and where it is decreasing.



- (A) Increasing:  $(-\infty, 5)$   $(-3, \infty)$ Decreasing: (-3,1)
- Increasing  $(-\infty, -3)(1, \infty)$ (B) Decreasing: (-3,1)
- Increasing:  $(-3, \infty)$ (C) Decreasing:  $(5, -\infty)$
- Increasing:  $(1, \infty)$ (D) Decreasing:  $(-3, -\infty)$

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18.

19.

20.

Test Page 4

## Rockswold College Algebra & Trigonometry Chapter 1 Test–Form B

Ra	uinfall (inches)	7.0	13.7	8.1	6.5	2.9	10.5	
	Month	Jul	Aug	Sep	Oct	Nov	Dec	
The t in a t for th	table displays the pypical year. Find the set of the se	monthly ra the mean 1	ainfall for monthly ra	Hilo, Haw ainfall to th	aii, for the neares	he last six t tenth of a	months an inch	6
(C)	{(4,1), (0, 2), (0	, 3), (4, 4)	)}	(D)	{(1, 1),	(2, 0), (3,	0), (4, -4)}	
(A)	{(1, -2), (2, 0), (	(3, 0), (4, 4	4)}	(B)	{(1, -4	4), (2, 0), (	$(3, 0), (4, 2)\}$	
Deter	rmine which set of	f ordered j	pairs does	<b>not</b> repres	ent a fur	oction.		5
(C)	$1.805 \times 10^{-3}$ feet			(D)	18.05	feet		
(A)	180.5 feet			(B)	1,805	feet		
squar Find	re feet and contain the average depth	s a total v of Lake N	olume of Mead.	$1.37 \times 10^{11}$	cubic fe	et of water		
Lake	Mead, formed by	the const	ruction of	the Hoove	r Dam, c	overs 7.59	$9 \times 10^{8}$	4
(C)	undefined			(D)	1.6			
(A)	-1.6			(B)	-0.62	5		
If pos	ssible, find the slo	pe of the l	line passir	ng through	(2.1, -5.	3) and (5.	6, -10.9).	3
	-5	V		(D)	(–2.7	,5.7)		
	-5		x	(C)	(-∞,∘	∞) )		
	$= \frac{f}{\lambda}$	Î		(B)	(-3,6	)		
	5			(A)	[-6,5	]		
	y •				r	1		
Use t	the graph of $f$ to define the graph of $f$ to	etermine i	ts domain	l <b>.</b>				2
(C)	19			(D)	1			
(A)	34			(B)	-16			
Let a	function $f$ be repr	resented s	ymbolical	ly by $f(x)$	$=10-x^{2}$	<sup>2</sup> . Find $f(-$	-3).	1
	Let a (A) (C) Use t Use t (A) (C) Lake squar Find (A) (C) Dete (A) (C) The t in a t for th 	Let a function $f$ be repr (A) 34 (C) 19 Use the graph of $f$ to denote	Let a function $f$ be represented sy (A) 34 (C) 19 Use the graph of $f$ to determine in	Let a function <i>f</i> be represented symbolical (A) 34 (C) 19 Use the graph of <i>f</i> to determine its domain $\int_{a=1}^{y} \int_{a=1}^{y} \int_{a$	Let a function f be represented symbolically by $f(x)$ (A) 34 (B) (C) 19 (D) Use the graph of f to determine its domain. (A) (B) (C) (B) (C) (D) If possible, find the slope of the line passing through (A) -1.6 (B) (C) undefined (D) Lake Mead, formed by the construction of the Hoove square feet and contains a total volume of $1.37 \times 10^{11}$ Find the average depth of Lake Mead. (A) 180.5 feet (B) (C) 1.805 × 10 <sup>-3</sup> feet (D) Determine which set of ordered pairs does <b>not</b> repress (A) $\{(1, -2), (2, 0), (3, 0), (4, 4)\}$ (B) (C) $\{(4, 1), (0, 2), (0, 3), (4, 4)\}$ (D) The table displays the monthly rainfall for Hilo, Haw in a typical year. Find the mean monthly rainfall to th for these six months. (A) 180.5 feet (A) $\{(1, -2), (2, 0), (3, 0), (4, 4)\}$ (C) (C) $\{(4, 1), (0, 2), (0, 3), (4, 4)\}$ (D)	Let a function f be represented symbolically by $f(x) = 10 - x^{-1}$ (A) 34 (B) -16 (C) 19 (D) 1 Use the graph of f to determine its domain. (A) [-6,5 (B) (-3,6 (C) (- $\infty$ ,c (D) (-2.7) If possible, find the slope of the line passing through (2.1, -5. (A) -1.6 (B) -0.62. (C) undefined (D) 1.6 Lake Mead, formed by the construction of the Hoover Dam, c square feet and contains a total volume of $1.37 \times 10^{11}$ cubic fee Find the average depth of Lake Mead. (A) 180.5 feet (B) 1,805 (C) 1.805 × 10 <sup>-3</sup> feet (D) 18.05 Determine which set of ordered pairs does <b>not</b> represent a fur (A) {(1, -2), (2, 0), (3, 0), (4, 4)} (B) {(1, -4)} (C) {(4, 1), (0, 2), (0, 3), (4, 4)} (D) {(1, 1), (0, 2), (0,	Let a function f be represented symbolically by $f(x) = 10 - x^2$ . Find $f(-(A) 34$ (B) $-16$ (C) 19 (D) 1 Use the graph of f to determine its domain. (A) $[-6,5]$ (B) $(-3,6)$ (C) $(-\infty,\infty)$ (D) $(-2.7,5.7)$ If possible, find the slope of the line passing through $(2.1, -5.3)$ and $(5.$ (A) $-1.6$ (B) $-0.625$ (C) undefined (D) 1.6 Lake Mead, formed by the construction of the Hoover Dam, covers 7.59 square feet and contains a total volume of $1.37 \times 10^{11}$ cubic feet of water Find the average depth of Lake Mead. (A) $180.5$ feet (B) $1.805$ feet (C) $1.805 \times 10^{-3}$ feet (D) $18.05$ feet Determine which set of ordered pairs does <b>not</b> represent a function. (A) $\{(1, -2), (2, 0), (3, 0), (4, 4)\}$ (D) $\{(1, 1), (2, 0), (3, -1), (2, 0), (3, -1), (2, 0), (3, -1), (2, 0), (3, -1), (2, 0), (3, -1), (2, 0), (3, -1), (2, 0), (3, -1),$	Let a function f be represented symbolically by $f(x) = 10 - x^2$ . Find $f(-3)$ . (A) 34 (B) $-16$ (C) 19 (D) 1 Use the graph of f to determine its domain. (A) $\begin{bmatrix} -6,5 \end{bmatrix}$ (B) $(-3,6)$ (C) $(-\infty,\infty)$ (D) $(-2.7,5.7)$ If possible, find the slope of the line passing through $(2.1, -5.3)$ and $(5.6, -10.9)$ . (A) $-1.6$ (B) $-0.625$ (C) undefined (D) $1.6$ Lake Mead, formed by the construction of the Hoover Dam, covers $7.59 \times 10^8$ square feet and contains a total volume of $1.37 \times 10^{11}$ cubic feet of water. Find the average depth of Lake Mead. (A) $[10, -2), (2, 0), (3, 0), (4, 4)$ (B) $1.805$ feet (C) $1.805 \times 10^{-3}$ feet Determine which set of ordered pairs does <b>not</b> represent a function. (A) $\{(1, -2), (2, 0), (3, 0), (4, 4)\}$ (D) $\{(1, 1), (2, 0), (3, 0), (4, 2)\}$ (C) $\{(4, 1), (0, 2), (0, 3), (4, 4)\}$ (D) $\{(1, 1), (2, 0), (3, 0), (4, -4)\}$ The table displays the monthly rainfall for Hilo, Hawaii, for the last six months in a typical year. Find the mean monthly rainfall to the nearest tenth of an inch for these six months. $\overline{Month} \qquad Jul \qquad Aug \qquad Sep \qquad Oct \qquad Nov \qquad Dec}$

Rainfall (inches)		7.0	13.7	8.1	6.5	2.9
(A)	48.7 in.			(B)	7.6 in.	
(C)	24.4 in.			(D)	8.1 in.	

7. Use the graph of f to evaluate f(-2).



- 8. Find the domain of  $f(x) = \frac{1}{\sqrt{5-x}}$ . (A) x = 5 (B) (-
  - (A) x = 5 (B)  $(-\infty, 5)$ (C)  $(5, \infty)$  (D)  $(-\infty, 5) \cup (5, \infty)$

9. Find the midpoint of the line segment joining the points (-3.1, -6.5) and (6.8, -3.7).

- (A) (-4.95, -1.4) (B) (-4.8, 1.55)
- (C) (1.7, 5.25) (D) (1.85, -5.1)
- 10. Find the equation of the circle.
- (A)  $(x-1)^2 + (y+1)^2 = 25$ (B)  $(x+1)^2 + (y-1)^2 = 5$ (C)  $(x+1)^2 + (y-1)^2 = 25$ (D)  $(x-1)^2 + (y+1)^2 = 5$

11. Find the distance between the points (-7.3, -1.47) and (-4.5, 1.47) to the nearest hundredth.

- (A) 5.74 (B) 16.48
- (C) 11.80 (D) 4.06
- 12. Find the domain and range of the relation

 $S = \{(1.7, -3.2), (-3.7, -2.3), (-2.5, 3.7), (5.3, 4.1), (2.9, -1.2)\}.$ 

(A)  $D = \{-3.2, -2.3, 3.7, 4.1, -1.2\}$ (B)  $D = \{1.7, -3.7, -2.5, 5.3, 2.9\}$  $R = \{1.7, -3.7, -2.5, 5.3, 2.9\}$  $R = \{-3.2, -2.3, 3.7, 4.1, -1.2\}$ (C)  $D = \{1.7, -3.2, -3.7, -2.3, -2.5\}$ (D)  $D = \{-1.5, -6.0, 1.2, 9.4, 1.7\}$  $R = \{3.7, 5.3, 4.1, 2.9, -1.2\}$  $R = \{4.9, -1.4, -6.2, 1.2, 4.1\}$ 

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Test Page 2

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9.	
10.	
11.	

13.

14. \_\_\_\_\_

13. In 2000 the population of Albuquerque, New Mexico was 448,362 and in 2010 it was 545,852. Use the midpoint formula to estimate Albuquerque's population in 2005.

(A)	497,107	(B)	498,298
(C)	500,135	(D)	496,641

14. The data displayed in the table are linear. State the slope *m* of the line passing through the data points.

X	-2	0	2	4	6	_
Y	4	1	-2	-5	-8	-
(A)	$m = -\frac{3}{2}$				(B)	$m = \frac{2}{3}$
(C)	$m = -\frac{2}{3}$				(D)	$m = \frac{3}{2}$

15. Which of the following is **not** the graph of a function?



- 16. Write a symbolic representation (formula) of a function g that computes the number of dimes in x dollars.
  - $(B) \qquad g(x) = \frac{x}{10}$ (A) g(x) = 0.10x(D)  $g(x) = \frac{x}{0.10}$ (C) g(x) = 10x
- 17. The function *P* defined by

 $P(t) = 2.5t^2 + 0.5t + 12$ 

models the number of diagnostic machines produced by a medical equipment manufacturer yearly, where t = 0 corresponds to the first year of production, 2000. Find the average rate of change in the number of machines produced yearly between 2005 and 2010.

(A)	28 machines/year	(B)	190 machines/year
(C)	38 machines/year	(D)	95 machines/year

- 95 machines/year (D)
  - 7

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15. \_\_\_\_\_

16. \_\_\_\_\_

Test Page 4

18. Plot the relation  $\{(-3, 1), (-3, -2), (5, 4)\}$  in the *xy*-plane.



19. Use the graph to determine the intervals on which f is increasing and which it is decreasing.



- (A) Increasing: (-7, 1)Decreasing:  $(\infty, -7)(1, -\infty)$
- (B) Increasing:  $(-7, \infty)$ Decreasing:  $(1, -\infty)$
- (C) Increasing: (0, 4)Decreasing:  $[-\infty, 0) (4, \infty)$
- (D) Increasing:  $(0, -\infty)$ Decreasing:  $(4, \infty)$
- 20. The table shows the *Pizzazz-Zee* corporation's income for the first 6 months of last year in thousands of dollars. Find its median monthly income for this period to the nearest thousand dollars.

M	onth	Jan	Feb	Mar	Apr	May	Jun
Income		193	171	257	329	379	221
(A) (C)	\$239,000 \$208,000				(B) (D)	\$258,000 \$920,000	

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18. \_\_\_\_\_

20. \_\_\_\_\_

## Rockswold College Algebra & Trigonometry Chapter 1 Test–Form C

1.	Let a function <i>f</i> be represented symbolically by $f(x) = 11 - x^2$ . Find $f(-5)$ .	1
2.	Lake Roosevelt, formed by the construction of the Grand Coulee Dam, covers $3.98 \times 10^8$ square feet and contains a total volume of $2.51 \times 10^{10}$ cubic feet of water. Find the average depth of Lake Roosevelt to the nearest tenth of a foot.	2
3.	Use the graph of $f$ to determine its domain.	3
4.	If possible, find the slope of the line passing through $(-1.7, -5.3)$ and	4
	(0.1, -9.8).	
5.	Determine which set of ordered pairs does <b>not</b> represent a function.	5
	(A) $\{(1, 2), (2, 4), (3, 0), (4, 2)\}$ (B) $\{(1, -8), (2, 2), (3, 0), (4, 4)\}$	
	(C) $\{(-1, 1), (-2, 2), (-1, 3), (0, 4)\}$ (D) $\{(1, 4), (2, 4), (3, 4), (4, 4)\}$	
6.	The table displays the monthly rainfall for Tampa, Florida, for the first six months in a typical year. Find the mean monthly rainfall to the nearest hundredth of an inch for these six months.	6
	Month Jan Feb Mar Apr May Jun	

7. Use the graph of f to evaluate f(0).

2.2

2.7

2.8

Name \_\_\_\_\_



Rainfall (inches)

2.9

5.5

7. \_\_\_\_\_

1.8

8.	Find the domain of $f(x) = \sqrt{x - 10}$ .	8	
9.	Find the midpoint of the line segment joining the points $(4.1, 1.9)$ and $(6.1, \Box 3.5)$ .	9	
10.	Find the equation of the circle. $y$	10	
	-5 $5$ $x$		
11.	Find the distance between the points $(11.2, -8.9)$ and $(2.7, 11.5)$ to the nearest tenth.	11	
12.	Find the domain and range of the relation	12	
	$S = \{(-4.8, -1.2), (1.5, -2.7), (3.2, 5.4), (1.9, 5.1), (2.9, -1.7)\}.$		
13.	In 2000 the population of Austin, Texas was 659,627 and in 2010 it was 790,390. Use the midpoint formula to estimate Austin's population in 2005.	13	
14.	The data displayed in the table are linear. State the slope $m$ of the line passing through the data points.	14	
	X -4 -2 0 2 4		
	<b>Y</b> -13 -8 -3 2 7		
15.	Which of the following is <b>not</b> the graph of a function?	15	
	(A) (B)		



(D)

(C)

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Test Page 3

- 16. Write a symbolic representation (formula) of a function f that computes the number of ounces in x pounds.
- 17. The function *P* defined by

 $P(t) = 1.5t^2 + 2.5t + 42$ 

models the number of diagnostic machines produced by a medical equipment manufacturer yearly, where t = 0 corresponds to the first year of production, 2000. Find the average rate of change in the number of machines produced yearly between 2005 and 2010.

18. Plot the relation  $S = \{(-3, 7), (-1, 3), (-5, -3), (8, -1), (2, 2)\}$  in the *xy*-plane.





20. The table shows the *Pizzazz-Zee* corporation's income for the first 6 months of last year in thousands of dollars. Find its median monthly income for this period to the nearest thousand dollars.

Month	Jan	Feb	Mar	Apr	May	Jun
Income	127	93	173	125	137	149

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16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19.

20.

# Rockswold College Algebra & Trigonometry Chapter 1 Test–Form D

1.	1. Let a function <i>f</i> be represented symbolically by $f(x) = 12 - x^2$ . Find $f(-6)$ .						1.		
2.	2. Lake Powell, formed by the construction of the Glen Canyon Dam, covers $7.78 \times 10^8$ square feet and contains a total volume of $9.84 \times 10^{10}$ cubic feet of water. Find the average depth of Lake Powell to the nearest tenth of a foot.						2.		
3.	Use the graph of $f$ to $c$	determine	its domain	n.				3.	
	y 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	x							
4.	If possible, find the slo	ope of the	e line passi	ing throug	gh (4.2, –	1.3) and (	7.4, 3.5).	4.	
5.	Determine which set of	of ordered	l pairs doe	s not repr	esent a fu	nction.		5.	
	$(A)  \{(1,2), (2,4), $	(3, 6), (4, 8	8)}	(E	3) {(8, 4	4), (6, 3), (	4, 2), (2, 1)}		
	(C) $\{(-1, \pi), (-2, \pi)\}$	$\pi$ ), (-3, $\pi$	$\pi$ ), (-4, $\pi$ )	)} (E	<b>b</b> ) $\{(\pi,$	1), $(\pi, 2)$ ,	$(\pi, 3), (\pi, 4)\}$		
6. The table displays the monthly rainfall for Tampa, Florida, for the last six months in a typical year. Find the mean monthly rainfall to the nearest hundredth of an inch for these six months.									
6.	The table displays the in a typical year. Find an inch for these six n	monthly the mean nonths.	rainfall fo monthly	r Tampa, rainfall to	Florida, f the neare	or the last st hundred	six months lth of	6.	
6.	The table displays the in a typical year. Find an inch for these six n Month	monthly the mean nonths.	rainfall fo monthly Aug	r Tampa, rainfall to <b>Sep</b>	Florida, f the neare Oct	or the last st hundred Nov	six months lth of Dec	6.	
6.	The table displays the in a typical year. Find an inch for these six n Month Rainfall (inches)	monthly the mean nonths. Jul 6.4	rainfall fo monthly Aug 7.6	r Tampa, rainfall to Sep 6.5	Florida, f the neare Oct 2.4	Nov 1.6	six months Ith of Dec 2.3	6.	
<ol> <li>6.</li> <li>7.</li> </ol>	The table displays the in a typical year. Find an inch for these six n Month Rainfall (inches) Use the graph of $f$ to e	monthly the mean nonths. Jul 6.4 evaluate f	Aug 7.6	r Tampa, rainfall to Sep 6.5	Florida, f the neare Oct 2.4	or the last st hundred Nov 1.6	six months lth of Dec 2.3	6.	
6.	The table displays the in a typical year. Find an inch for these six n Month Rainfall (inches) Use the graph of $f$ to e	monthly the mean nonths. Jul 6.4 evaluate <i>f</i>	Aug 7.6	r Tampa, rainfall to Sep 6.5	Florida, f the neare Oct 2.4	Nov	six months lth of Dec 2.3	6.	
<ol> <li>6.</li> <li>7.</li> <li>8.</li> </ol>	The table displays the in a typical year. Find an inch for these six n Month Rainfall (inches) Use the graph of $f$ to e	monthly the mean nonths. <b>Jul</b> 6.4 evaluate $f$ x $(x) = \sqrt{8} - 1$	rainfall fo         n monthly         Aug         7.6         f(2).	r Tampa, rainfall to Sep 6.5	Florida, f the neare Oct 2.4	or the last st hundred Nov 1.6	six months Ith of 2.3	<ol> <li>6.</li> <li>7.</li> <li>8.</li> </ol>	
<ul><li>6.</li><li>7.</li><li>8.</li><li>9.</li></ul>	The table displays the in a typical year. Find an inch for these six n Month Rainfall (inches) Use the graph of $f$ to e	monthly the mean nonths. <b>Jul</b> 6.4 evaluate $f$ x $(x) = \sqrt{8-1}$ the line se	rainfall fo monthly $r$ Aug 7.6 r(2). r(2).	r Tampa, rainfall to <u>Sep</u> 6.5	Florida, f the neare Oct 2.4	Nov 1.6 3, 5.7)	six months hth of Dec 2.3	6. 7. 8. 9.	
<ol> <li>6.</li> <li>7.</li> <li>8.</li> <li>9.</li> </ol>	The table displays the in a typical year. Find an inch for these six n Month Rainfall (inches) Use the graph of $f$ to end of $f$ to be end of $f$ to end of $f$ to be end of	monthly the mean nonths. <b>Jul</b> 6.4 evaluate $f$ x $(x) = \sqrt{8}$ the line se	rainfall fo monthly $r$ 7.6 f(2).	r Tampa, rainfall to <u>Sep</u> 6.5	Florida, f the neare Oct 2.4 oints (-1.	Nov 1.6 3, 5.7)	six months ith of 2.3	6. 7. 8. 9.	

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- 11. Find the distance between the points (1.81, 8.13) and (-5.11, 2.94) to the nearest hundredth.
- 12. Find the domain and range of the relation

 $S = \{(4.8, 2.1), (5.2, 1.9), (-1.7, -4.3), (2.2, -3.9), (-4.9, -1.1)\}.$ 

Rockswold College Algebra & Trigonometry

- 13. In 2000 the population of Portland, Oregon was 529,209 and in 2010 it was 583,776. Use the midpoint formula to estimate Portland's population in 2005.
- 14. The data displayed in the table are linear. State the slope m of the line passing through the data points.

X	-9	-5	-1	3	7
Y	3	2	1	0	-1

15. Which of the following is **not** the graph of a function?



### 16. Write a symbolic representation (formula) of a function f that computes the number of pounds in x ounces.

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Test Page 2

11.	
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17. The function *P* defined by

 $P(t) = 0.5t^2 + 3.5t + 25$ 

models the number of diagnostic machines produced by a medical equipment manufacturer yearly, where t = 0 corresponds to the first year of production, 2000. Find the average rate of change in the number of machines produced per year between 2005 and 2010.

18. Plot the relation  $S = \{(-4, 1), (2.5), (-1, 1), (3, 6), (4, -1)\}$  in the *xy*-plane.

19. Use the graph to determine the intervals on which f is increasing and on which it is decreasing.

20. The table shows the *Pizzazz-Zee* corporation's income for the first 6 months of last year in thousands of dollars. Find its median monthly income for this period to the nearest thousand dollars.

Month	Jan	Feb	Mar	Apr	May	Jun
Income	231	113	387	217	285	309

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		 $\square$		-	
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### Test 1 Answers

Test 1 Answers								
Form A	Form B	Form C	Form D					
1. C	1. D	114	1. –24					
2. C	2. B	2. 63.1 feet	2. 126.5 feet					
3. C	3. A	3. (-5,5)	3. [-4,1]					
4. A	4. A	4 -2 5	4 1 5					
5. D	5. C	5. C	5. D					
6. B	6. D	6. 2.98 in	6. 4 47 in					
7. C	7. A	7 -3	7. 1					
8. B	8. B		e ( ~ e]					
9. A	9. D	8. [10,∞)	a. (-∞,a]					
10. B	10. A	9. (5.1, -0.8)	9. (1.65, 3.9)					
11. B	11. D	10. $(x+1)^2 + (y+3)^2 = 9$	10. $(x-2)^2 + (y+2)^2 = 25$					
12. D	12. B	11. 22.1	11. 8.65					
13. D	13. A	12. $D = \{-4.8, 1.5, 3.2, 1.9, 2.9\}$	12. $D = \{4.8, 5.2, -1.7, 2.2, -4.9\}$					
14. C	14. A	$\mathbf{R} = \{-1.2, -2.7, 5.4, 5.1, -1.7\}$	$R = \{2.1, 1.9, -4.3, -3.9, -1.1\}$					
15. A	15. A	13 725 009	13. 556,493					
16. A	16. C	5	$14 m = -\frac{1}{2}$					
17. C	17. C	14. $m = \frac{5}{2}$	4					
18. D	18. D	15 C	15. D					
19. C	19. C	$16. \ f(x) = 16x$	16. $f(x) = \frac{x}{16}$					
20. B	20. A	17. 25 machines/year	10 17. 11 machines/vear					
		18. $y$	18. $y$ y y y y y y y					
		<ul> <li>19. Increasing: (-∞, -2) (4, ∞)</li> <li>Decreasing: (-2, 4)</li> </ul>	19. Increasing: $(-1, 5)$ Decreasing: $(-\infty, -1)$ $(5, \infty)$					
		20. \$132,000	20. \$258,000					

Rockswold College Algebra & Trigonometry Chapter 2 Test–Form A

1. Write a formula for *f*.



- 2. To receive an A in the course a student must earn at least 90% of the total points possible on a series of exams. There are three 100-point unit exams and a 200-point final exam. Mark's scores on the first three exams are 85, 91, and 88. What is the lowest score he can earn on the final exam to earn an A in the course?
  - (A) 93 (B) 186
  - (C) He cannot earn enough points. (D) 96
- 3. Solve the linear equation 6 + 6(12 x) = 4(x 1) 1.
  - (A) 9.3125 (B) -41.5 (C) -36.5 (D) 8.3
- 4. Find the slope-intercept form of the equation of the line parallel to y = 4x 1, passing through (5, -3).
  - (A)  $y = -\frac{1}{4}x 3$  (B) y = 4x 3
  - (C)  $y = -\frac{1}{4}x \frac{7}{4}$  (D) y = 4x 23
- 5. The graphs of two linear functions f and g are shown in the figure. Solve the inequality g(x) > f(x).



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4. \_\_\_\_

6. Solve the linear inequality  $3x + 9 \le 5x - 2$ . Write the solution set in interval notation.

- (A)  $\left[-\frac{11}{2},\infty\right)$  (B)  $\left(-\infty,-\frac{11}{2}\right]$ (C)  $\left(-\infty,\frac{11}{2}\right]$  (D)  $\left[\frac{11}{2},\infty\right)$
- 7. Solve the absolute value inequality  $|7-3x| \ge 5$ .
  - (A)  $\frac{2}{3} \le x \le 4$ (B)  $x \le \frac{2}{3}$  or  $x \ge 4$ (C)  $-4 \le x \le -\frac{2}{3}$ (D)  $x \le -4$  or  $x \ge -\frac{2}{3}$
- 8. Find f(x) = ax + b so that f models the data exactly.

X	-6	-2	1	5	9	
f(x)	-0.64	-0.48	-0.36	-0.20	-0.04	
(A)	f(x) = 6.06	x + 0.36		(B	) $f(x) =$	0.165x - 0.625
(C)	f(x) = 0.04	x - 0.4		(D	) $f(x) =$	25x - 124.8

9. Graph the linear function  $f(x) = \frac{3}{5}x - 3$ .



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7. \_\_\_\_\_

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- 10. The Old Campaign Warhouse can prepare a political mailing in 8 hours if working alone. It would take the Enthusiastic Volunteer, working on her first campaign, 12 hours. How long will it take them to prepare the mailing if they work together?
  - (A) 20 hours (B) 4.8 hours
  - (C) 10 hours (D) 2 hours
- 11. Solve the absolute value equation |5x+2|-2=5.
  - (A) No solutions (B)  $1, -\frac{9}{5}$ (C) -1, 1(D)  $1, -\frac{5}{9}$
- 12. Sketch the graph of the function f(x) = |x| 4



- 13. The inequality  $|78 T| \le 18$  describes the range of monthly average temperatures *T* in degrees Fahrenheit for Austin, Texas. Find the high and low monthly average temperatures for Austin.
  - (A) High =  $96^{\circ}$ F; Low =  $0^{\circ}$ F (B) High =  $60^{\circ}$ F; Low =  $0^{\circ}$ F

(C)	High = $96^{\circ}$ F; Low = $60^{\circ}$ F	(D)	High = $78^{\circ}$ F; Low = $18^{\circ}$ F
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19

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12.

14. The table lists data that are exactly linear. Predict the value of *y* when x = -2.1.

x	-3	-2	-1	0	1
Y	8.8	5.6	2.4	-0.8	-4
(A)	<i>y</i> = 7.52			(B)	<i>y</i> = -5.92
(C)	y = -7.52			(D)	y = 5.92

15. The graph depicts the distance *y* that a person driving a car on a straight road is from home after *x* hours. Between what hours was the person driving slowest?



16.	Deter	mine how much pure water should be	mixed	1 with 18 liters of a 15% solution	16	
	of hydrochloric acid to make a 12% solution of hydrochloric acid.					
	(A)	27 liters	(B)	0.8 liters		
	(C)	4.5 liters	(D)	22.5 liters		
17.	A dri straig that n (A)	ver of a car is initially 315 miles from the freeway at 60 miles per hour. Write models the distance between the driver f(x) = 315 + 60x	home a for and h (B)	, traveling away from home on a mula for a linear function $f$ ome after $x$ hours. f(x) = 60 + 315x	17	

(C) f(x) = 315 - 60x (D) f(x) = 60 - 315x

18. Find an equation of the lin	the parallel to the x-axis, passing through $(4, -3)$ .	18
(A) $x = 4$	(B) $x = -3$	
(C) $y = 4$	(D) $y = -3$	

14. \_\_\_\_\_

### 19. Sketch the graph of the function



20. The graphs of three linear functions *f*, *g*, and *h* with domains [0,7] are shown in the figure. Solve the inequality f(x) < g(x) < h(x).



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19.

20.

1. Write a formula for *f*.

	(A)	$f(x) = -\frac{5}{2}x - 2$
	(B)	$f(x) = \frac{2}{5}x - 2$
$-5 \qquad y = f(x) \qquad x$	(C)	$f(x) = -\frac{2}{5}x - 2$
	(D)	$f(x) = \frac{5}{2}x - 2$

2. To receive an A in the course a student must earn at least 90% of the total points possible on a series of exams. There are three 100-point unit exams and a 200-point final exam. Mark's scores on the first three exams are 78, 96, and 87. What is the lowest score he can earn on the final exam to earn an A in the course?

(A)	He cannot earn enough points	(B)	154
(C)	189	(D)	94

3. Solve the linear equation 5x - (3 + x) = x + 5(x - 4).

- (A) No solutions
   (B) -2.3
   (C) 8.5
   (D) -8.5
- 4. Find the slope-intercept form of the equation of the line parallel to y = -2x + 3, passing through (3, -7).
  - (A)  $y = -\frac{1}{2}x 7$  (B)  $y = \frac{1}{2}x \frac{17}{2}$ (C) y = -2x - 1 (D) y = 2x - 7
- 5. The graphs of two linear functions f and g are shown in the figure. Solve the inequality f(x) > g(x).



22

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1.

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3. \_\_\_\_\_

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6. Solve the linear inequality  $2x - 7 \ge 9x + 2$ . Write the solution set in interval notation.

(A) 
$$\begin{bmatrix} -9 \\ -7 \\ 7 \end{bmatrix}$$
 (B)  $\begin{pmatrix} -\infty & -\frac{9}{7} \end{bmatrix}$   
(C)  $\begin{pmatrix} -\infty & -\frac{9}{7} \end{bmatrix}$  (D)  $\begin{bmatrix} \frac{9}{7} & \infty \end{pmatrix}$ 

- 7. Solve the absolute value inequality  $|7x-3| \ge 4$ .
  - (A)  $x \le -\frac{1}{7} \text{ or } x \ge 1$ (B)  $-\frac{1}{7} \le x \le 1$ (C)  $-1 \le x \le \frac{1}{7}$ (D)  $x \le -1 \text{ or } x \ge \frac{1}{7}$
- 8. Find f(x) = ax + b so that f models the data exactly.

x	-6	-2	1	5	9	
f(x)	2.86	1.58	0.62	-0.66	-1.94	
(A)	f(x) = -2.2x	+1.58		(B) f(	(x) = -3.12	25x + 2.505
(C)	f(x) = -2.2x	-2.82		(D) <i>f</i> (	(x) = -0.32	x + 0.94

9. Graph the linear function f(x) = 4x - 5.



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7. \_\_\_\_\_



- 10. An upgraded version of a computer chip can process a standard data set in  $6 \mu$  sec. The earlier version of the chip takes  $9 \mu$  sec to process the same data set. How long would it take both chips working together to process the data set?
  - (A)  $15 \,\mu \,\text{sec}$  (B)  $3 \,\mu \,\text{sec}$
  - (C)  $7.5 \ \mu \sec$  (D)  $3.6 \ \mu \sec$
- 11. Solve the absolute value equation |3x-5|+2=9.
  - (A) No solutions (B) -4, 4
  - (C)  $\frac{2}{3}$ , 4 (D)  $-\frac{2}{3}$ , 4
- 12. Sketch the graph of the function f(x) = |x-4|.



- 13. The inequality  $|49 T| \le 22$  describes the range of monthly average temperatures *T* in degrees Fahrenheit for Holland, Michigan. Find the high and low monthly average temperatures for Holland.
  - (A) High =  $71^{\circ}F$ ; Low =  $0^{\circ}F$ (B) High =  $71^{\circ}F$ ; Low =  $27^{\circ}F$ (C) High =  $27^{\circ}F$ ; Low =  $60^{\circ}F$ (D) High =  $49^{\circ}F$ ; Low =  $22^{\circ}F$
- 14. The table lists data that are exactly linear. Predict the value of y when x = -1.7.

X	-3	-2	-1	0	1
Y	0.4	1.3	2.2	3.1	4
(A)	<i>y</i> = 1.57			(B) $y =$	4.63
(C)	y = -4.83			(D) $y =$	-1.57
				24	

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10. \_\_\_\_\_

11. \_\_\_\_\_

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13.

15. 15. The graph depicts the distance y that a person driving a car on a straight road is from home after x hours. Between what hours was the person driving fastest? 70 (A) 0 and 1 60 50 (B) 1 and 2 40 (C) 2 and 4 30 20 (D) 4 and 6 10 0 2 3 4 7 16. \_\_\_\_\_ 16. Determine how much pure water should be mixed with 12 liters of a 18% solution of sodium chloride to make a 10% solution of sodium chloride. (A) 0.56 liters (B) 9.6 liters (C) 28 liters (D) 21.6 liters 17. A driver of a car is initially 245 miles from home, traveling away from home 17. \_\_\_\_\_ on a straight freeway at 70 miles per hour. Write a formula for a linear function *f* that models the distance between the driver and home after *x* hours. (A) f(x) = 245 + 70x(B) f(x) = 60 + 245x(C) f(x) = 245 - 70x(D) f(x) = 70 - 245x18. Find an equation of the line parallel to the y-axis, passing through (4, -3). 18. (B) x = -3(A) x = 4(D) y = -3(C) y = 419. Sketch the graph of the function 19.



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20. The graphs of three linear functions *f*, *g*, and *h* with domains [0,7] are shown in the figure. Solve the inequality f(x) < g(x) < h(x).



Rockswold College Algebra & Trigonometry Chapter 2 Test–Form C

1. Write a formula for *f*. 1. 2. To receive an A in a course a student must earn at least 90% of the total points 2. possible on a series of exams. There are three 100-point unit exams and a 200-point final exam. Mark's scores on the first three exams are 65, 91, and 89. What is the lowest score he can earn on the final exam to earn an A in the course? 3. Solve the linear equation 7 - 8(x - 4) = 3x - 7. 3. 4. Find the slope-intercept form of the equation of the line parallel to  $y = \frac{1}{3}x + 4$ , 4. \_\_\_\_\_ passing through (6, -1). 5. The graphs of two linear functions f and g are shown in the figure. Solve the 5. inequality f(x) < g(x). (x6. Solve the linear inequality 5x + 7 > 8x + 2. Write the solution set in interval 6. notation. 7. Solve the absolute value inequality |5x-2| < 2. 7. 8. Find f(x) = ax + b so that f models the data exactly. 8. 5 9 1 x -6 -21.50 0.78 0.24 f(x)-0.48-1.20

Name

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9. Graph the linear function f(x) = 7 - 4x.



- 10. An upgraded version of a computer chip can process a standard data set in 12  $\mu$  sec. The earlier version of the chip takes 18  $\mu$  sec to process the same data set. How long would it take both chips working together to process the data set?
- 11. Solve the absolute value equation |7x-3|-7=11.
- 12. Sketch the graph of the function f(x) = |x+5|.



- 13. The inequality  $|48 T| \le 28$  describes the range of monthly average temperatures *T* in degrees Fahrenheit for Des Moines, Iowa. Find the high and low monthly average temperatures for Des Moines.
- 14. The table lists data that are exactly linear. Predict the value of *y* when x = -2.7.

x	-3	-2	-1	0	1
у	-12.7	-11.5	-10.3	-9.1	-7.9

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9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12.

14.

13.

15. The graph depicts the distance *y* that a person driving a car on a straight road is from home after *x* hours. Between what hours was the person driving slowest?



- 16. Determine how much pure water should be mixed with 25 liters of a 70% solution of naphthalene to make a 20% solution of naphthalene.
- 17. A driver of a car is initially 455 miles from home, traveling away from home on a straight freeway at 65 miles per hour. Write a formula for a linear function f that models the distance between the driver and home after x hours.
- 18. Find an equation of the line parallel to the *y*-axis, passing through (-2, 7).
- 19. Sketch the graph of the function

$$f(x) = \begin{cases} \frac{7}{3}x + 10 & \text{if } -6 \le x < -3\\ 3 & \text{if } -3 \le x < 2\\ \frac{1}{4}x + \frac{5}{2} & \text{if } 2 \le x \le 6. \end{cases}$$

20. The graphs of three linear functions f, g, and h with domains [0,7] are shown in the figure. Solve the inequality f(x) < g(x) < h(x).

20. \_\_\_\_\_



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15. \_\_\_\_\_

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8.

1. Write a formula for *f*.



- 3. Solve the linear equation 8-3(3-2x) = x-4(x-3).
- 4. Find the slope-intercept form of the equation of the line parallel to y = -3x 1, 4. \_\_\_\_\_\_ passing through (1, 9).
- 5. The graphs of two linear functions f and g are shown in the figure. Solve the inequality f(x) < g(x).



- 6. Solve the linear inequality x 9 > 8x 6. Write the solution set in interval 6. \_\_\_\_\_ 6.
- 7. Solve the absolute value inequality |4x + 7| < 3.
- 8. Find f(x) = ax + b so that f models the data exactly.

x	-6	-2	1	5	9
f(x)	8.90	3.62	-0.34	-5.62	-10.9