

Essential Understanding: Can you represent linear situations with equations, graphs, and inequalities, and model constraints to optimize solutions?

Day	Date	Assignment (Due the next class meeting)
8/14/23 (A) 8/15/23 (B)	Monday Tuesday	1.1 Function Notation and Compositions HW: 1.1 Practice, Sign Syllabus and pay \$3 lab fee
8/16/23 (A) 8/17/23 (B)	Wednesday Thursday	1.2 Equations of Lines HW: 1.2 Practice
8/18/23 (A) 8/21/23 (B)	Friday Monday	1.3 Systems of Equations HW: 1.3 Practice, have you paid your lab fee?
8/22/23 (A) 8/23/23 (B)	Tuesday Wednesday	1.4 Set and Interval Notation HW: 1.4 Practice HW: Start the Practice Test, have you paid your lab fee?
8/24/23 (A) 8/25/23 (B)	Thursday Friday	Unit 1 Practice Test (note: any late HW due by the start of the test next class)
8/28/23 (A) 8/29/23 (B)	Monday Tuesday	Unit 1 Test Notes/HW: 2.1 Intro Simplifying Radicals Notes (last page of your student notes)

- Be prepared for daily quizzes
- Need help? Try www.khanacademy.org
- Check www.washoeschools.net/DRHSmath in order to get information on how to access the textbook website, copies of notes, and other handouts.
- Students who complete every assignment for the semester are eligible for a 2% grade bonus.
- Students with no late assignments also get a pizza party!

Show the original problem, all work, and solutions on your own paper!

1.1 Practice Problems:

For #1-15, use $f(x) = -6x + 9$; $g(x) = 5x - 2$; $h(x) = -3$; $d(x) = -3x^2$

- Find $g(-3)$.
 - Find $f\left(\frac{1}{3}\right)$.
 - Find x if $d(x) = -12$.
 - Find x if $g(x) = 11$.
 - Find $f(x) + g(x) - h(x)$.
 - Find $g(x) - f(x)$.
 - Find $\frac{f(x)}{h(x)}$.
 - Find $f(x) \cdot g(x)$.
 - Find $f(g(x))$.
 - Find $g(x + 4)$.
 - Find $g(d(4))$.
 - Find $g(d(x))$.
 - Find $d(g(x))$.
 - Find $g(f(d(x)))$.
 - Find $f(f(x))$.
- 16) Beatriz is planning a roadtrip, and she usually drives 65 miles per hour. Which statement below is true?
- The domain is distance, and the range is hours.
 - The domain is speed and the range is distance.
 - The domain is hours and the range is speed.
 - The domain is hours and the range is distance.

For #17-21, solve each equation for the variable.

- $3x - 5(2 - 4x) = 18$
- $\frac{2}{3}b - 4 = -7$
- $\frac{6x+9}{4} = 2x$
- $\frac{3}{7-x} = \frac{5}{x+1}$
- $4(2x - 1) - 5x = 2 + 4(3 - x)$
- Solve for y : $3y - 2x = 12$

For #23-28, Factor each expression:

- $x^2 - x - 12$
- $x^2 + 13x + 42$
- $4x^2 - 81$
- $3x^2 + 24x - 99$
- $2x^2 + 11x + 5$
- $3x^2 - 27$

1.2 Practice Problems

For #1 – 6: Graph each line on a coordinate system.

- 1) $f(x) = -x - 4$ 2) $y + 3 = 8$ 3) $y + 3 = 6(x - 5)$
 4) $12x = -36$ 5) $3y = 2x - 1$ 6) $y - 1 = \frac{2}{3}(x - 7)$

For #7 – 10, write the equation of each line in slope-intercept form.

- 7) A line has a slope of -3 and passes through the point (1, -5).
 8) A vertical line passes through the point (2, -8). (special line)
 9) A line is parallel to $y = \frac{1}{5}x - 1$ and goes through the point (10, -3).
 10) A horizontal line passes contains the ordered pair (-5, -15). (special line)

11) Angelfish cost \$7 each and tetras cost \$8 each. Patty spent \$32 on fish. Write a linear equation in standard form to model this situation.

- 12) Three students were chosen to show their solutions for solving the equation $y = a(x - h) + k$ for x . Their work is shown below. Determine which students were correct.

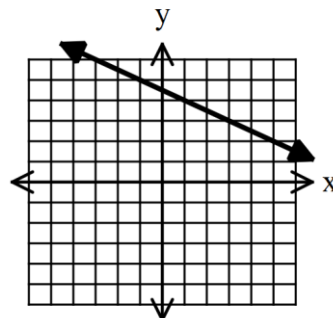
Student #1	Student #2	Student #3
$y = a(x - h) + k$	$y = a(x - h) + k$	$y = a(x - h) + k$
$y - k = a(x - h)$	$\frac{y}{a} = (x - h) + k$	$\frac{y}{a} = (x - h) + \frac{k}{a}$
$\frac{(y - k)}{a} = x - h$	$\frac{y}{a} - k = x - h$	$\frac{y}{a} - \frac{k}{a} = x - h$
$\frac{(y - k)}{a} + h = x$	$\frac{y}{a} - k + h = x$	$\frac{y}{a} - \frac{k}{a} + h = x$

- A. Students #1 and #2 B. Students #2 and #3 C. Students #1 and #3 D. All were correct

- 13) Which of the following is NOT an equivalent form of the line represented in the table:

x	y
-5	7
-3	6
-1	5
1	4

- A. $y = -\frac{1}{2}x + \frac{9}{2}$
 B. $y = -\frac{1}{2}(x + 5) + 7$
 C. $y = -\frac{1}{2}(x - 3) + 6$
 D.



For #14 – 18: $f(x) = 5x - 2$; $g(x) = -4x^2$; $h(x) = -7x + 8$

- 14) Find $g(-3)$. 15) Find $h(g(x))$. 16) Find $g(f(x))$. 17) Find $f(x) - h(x)$. 18) Find $f(h(-1))$.

1.3 Practice Problems**For #1 – 2, solve each system of equations by graphing.**

1) $2x + 4y = -8$

$y = -\frac{1}{2}x - 2$

2) $1 + x = 8$

$y = -5$

For #3 – 4, solve each system of equations by any method of your choice.

3) $2y = 6x + 1 + 3x$

$9x - 2y = 4$

4) $.25x + .5y = 4$

$.1x - .25y = -.2$

5) Harold is going to purchase t-shirts for a school fundraiser, and he is considering two companies. Company A charges \$8 per shirt, plus a set-up fee of \$100. Company B charges \$6 per shirt, plus a set-up fee of \$140. Set up a system of equations. **DO NOT SOLVE.**

6) Brenda has 12 coins in her wallet, consisting only of nickels and quarters, and they have a total value of \$2.00. How many quarters does she have?

7)
$$\begin{cases} 5x - 3 = 7 \\ 3x + 5y - 4z = -13 \\ x - 3y + 5z = 16 \end{cases}$$

8)
$$\begin{cases} 2x + 5y + z = -4 \\ 4y + z = 0 \\ -2z = -16 \end{cases}$$

9) A landscaping company placed two orders with a nursery. The first order was for 13 bushes and 4 trees, and totaled \$487. The second order was for 6 bushes and 2 trees, and totaled \$232. The bills do not list the per-item price. What were the costs of one bush and of one tree?

10) Two small pitchers and one large pitcher can hold 8 cups of water. One large pitcher minus one small pitcher constitutes 2 cups of water. How many cups of water can each pitcher hold?

11) A test has twenty questions worth 100 points. The test consists of True/False questions worth 3 points each and multiple choice questions worth 11 points each. How many multiple choice questions are on the test?

12) Solve:
$$\begin{cases} x + y + z = 4 \\ x - 2y - z = 1 \\ 2x - y - 2z = -1 \end{cases}$$

For #13 – 15, $f(x) = 3x^2$; $g(x) = 8 - 2x$; $h(x) = 4x^2 + 5x$

13) Find $h(-6)$

14) Find $f(g(x))$

15) Find $h(x) \cdot g(x)$

16) Write the equation of a line, in slope-intercept form, that is parallel to $3x - 7y = 21$ that passes through $(-8, -2)$.

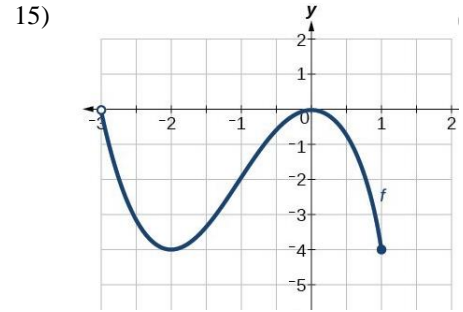
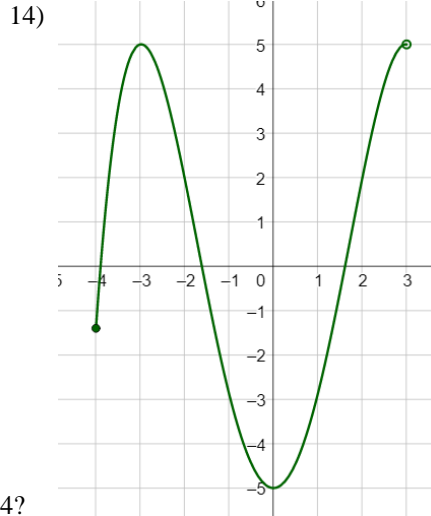
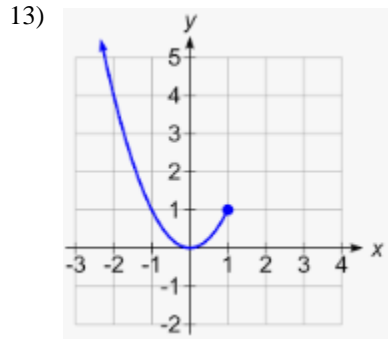
1.4 Practice Problems

For #1 – 12, find the domain and range in the requested form. Also, determine if the relation is a function or not.

<p>1) interval notation</p>	<p>2) set notation</p>	<p>3) interval notation</p>
<p>4) set notation</p>	<p>5) interval notation</p>	<p>6) set notation</p>
<p>7) interval notation</p>	<p>8) interval notation</p>	<p>9) interval notation</p>
<p>10) set notation</p>	<p>11) interval notation</p>	<p>12) set notation</p>

1.4 assignment continued on the next page...

For #13 – 15: Using interval notation, describe the x – values where each graph is increasing and decreasing.



16) How many x -intercepts are shown in #14?

Unit 1 Practice Test

For #1 – 6: $h(x) = 5x^2$, $f(x) = 3x - 11$, and $g(x) = -2x - 5$

- | | | |
|--|-------------------------------|-------------------------|
| 1) Find $f\left(-\frac{5}{3}\right)$. | 2) Find x if $g(x) = -27$. | 3) Find $g(x) + f(x)$. |
| 4) Find $h(x) \cdot g(x)$. | 5) Find $h(g(x))$. | 6) Find $f(f(-2))$. |

For 7 – 10, graph each line.

- | | | | |
|-----------------------|----------------|-------------------|------------------------|
| 7) $y - 6 = 5(x + 2)$ | 8) $y = x + 5$ | 9) $-2y = 4x + 2$ | 10) $y = -(x - 3) + 1$ |
|-----------------------|----------------|-------------------|------------------------|

For 11 – 12, write the equation of each line described (in slope-intercept form unless otherwise specified.)

- 11) A line is parallel to $y = 2x - 1$ and goes through the point $(-10, -3)$.
 12) A vertical line passes through the point $(-2, 7)$. (special line)

For 13 – 14, solve each system of equations by any method of your choice.

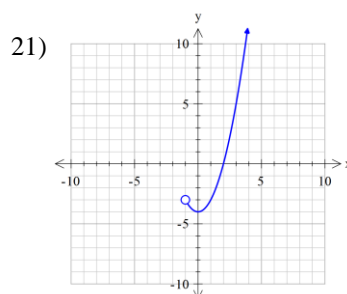
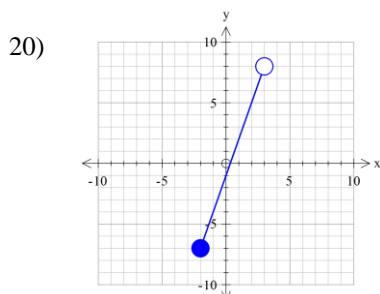
- 13)
$$\begin{cases} 3x + 6y = -3 \\ 7 - y + 2(x - 1) = -2 + 3x \end{cases}$$
- 14)
$$\begin{cases} x + 3y - 2z = -5 \\ 3x - y + 4z = 15 \\ -2x + y + z = -7 \end{cases}$$

15) Gary has 14 coins comprised entirely of dimes and nickels, totaling \$1.00. How many of each type of coin does he have?

For 16 – 19: Use the function $f(x) = 2x$.

- | | |
|-----------------------------------|---|
| 16) What is the domain and range? | 17) Is the function increasing or decreasing? |
| 18) What are the intercepts? | 19) What is the slope? |

For 20-21: State the domain and range in both set notation and interval notation.



Continued on next page.

Practice Test, continued...

For #22-33, match each domain and range to one of the graphs labeled A to L on the **last page of the practice packet**

22. Domain: $[-4, 4]$ Range: $[-4, 4]$ Function: No	23. Domain: $\{x \mid -3 < x \leq 5\}$ Range: $\{y \mid y = -1\}$ Function: Yes	24. Domain: $[-4, 2]$ Range: $[-2, 4]$ Function: Yes	25. Domain: $\{x \mid x > 0\}$ Range: $\{y \mid y = 4\}$ Function: Yes
26. Domain: $\{x \mid -6 \leq x \leq 6\}$ Range: $\{y \mid 0 \leq y \leq 6\}$ Function: Yes	27. Domain: $[-5]$ Range: $(-2, 6)$ Function: No	28. Domain: $\{x \mid x \geq 0\}$ Range: $\{y \mid y \text{ is } \mathbb{R}\}$ Function: No	29. Domain: $[-3, 4]$ Range: $[-2, 4]$ Function: No
30. Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$ Function: Yes	31. Domain: $\{x \mid -7 \leq x < 5\}$ Range: $\{y \mid -3 \leq y < 1\}$ Function: Yes	32. Domain: $(-\infty, \infty)$ Range: $[0, \infty)$ Function: Yes	33. Domain: $(-3, 4)$ Range: $[0, 5)$ Function: Yes

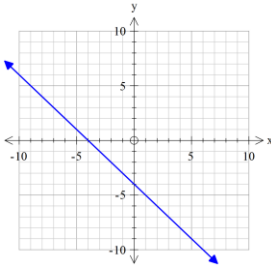
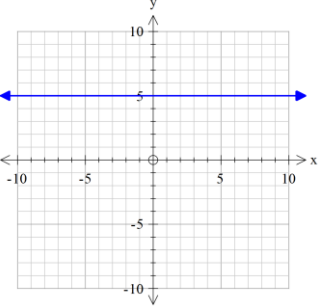
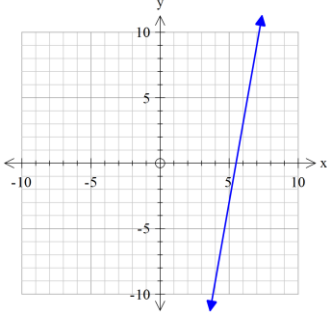
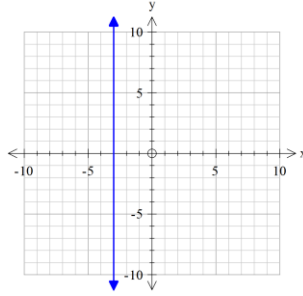
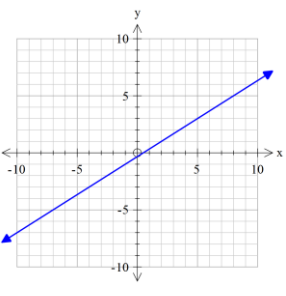
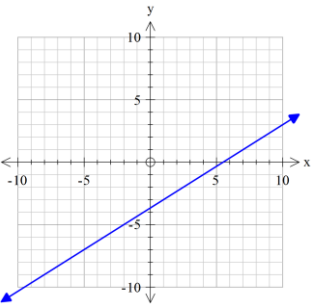
34) How many x -intercepts does graph J have? How about graph B?

Practice Problem Answers

1.1 ANSWERS

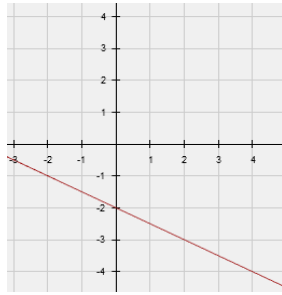
- 1) -17 2) 7 3) ± 2 4) 2.6 or $\frac{13}{5}$ 5) $-1x + 10$ 6) $11x - 11$
 7) $2x - 3$ 8) $-30x^2 + 57x - 18$ 9) $-30x + 21$ 10) $-15x^2 - 2$ 11) $-75x^2 + 60x - 12$
 12) $5x + 18$ 13) $36x - 45$ 14) $90x^2 + 43$ 15) -242 16) D 17) $x = \frac{28}{23}$
 18) $b = -\frac{9}{2}$ 19) $x = \frac{9}{2}$ 20) $x = 4$ 21) $x = \frac{18}{7}$ 22) $= \frac{2}{3}x + 4$
 23) $(x - 4)(x + 3)$ 24) $(x + 6)(x + 7)$ 25) $(2x - 9)(2x + 9)$ 26) $3(x - 3)(x + 11)$
 27) $(2x + 1)(x + 5)$ 28) $3(x - 3)(x + 3)$

1.2 ANSWERS

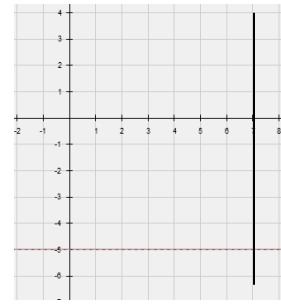
- 1)  2)  3) 
 4)  5)  6) 
 7) $y = -3x - 2$ 8) $x = 2$ 9) $y = \frac{1}{5}x - 5$ 10) $y = -15$ 11) $7x + 8y = 3$
 12) C 13) C 14) -36 15) $28x^2 + 8$ 16) $-100x^2 + 80x - 16$
 17) $12x - 10$ 18) 73

1.3 ANSWERS

1) graph IMS



2) graph (7, -5)



3) No solution

4) (8, 4)

5) $8s + 100 = C$ and $6x + 140 = C$

6) 7 quarters

7) (2, -3, 1)

8) (-1, -2, 8)

9) \$23 per bush, \$47 per tree

10) small pitcher: 2 cups, larger pitcher: 4 cups

11) 5 multiple choice questions

12) (2, -1, 3)

13) 114

14) $12x^2 - 96x + 192$

15) $-8x^3 + 22x^2 + 40x$

1.4 ANSWERS

1) D: (-5, 5]; R: [-2, 2]; function

2) D: $\{x | -5 \leq x < 5\}$; R: $\{y | 0 \leq y < 6\}$; function

3) D: [-4, 3]; R: (-5, 5); not a function

4) D: $\{x | -1 < x \leq 3\}$; R: $\{y | -5 < y \leq 3\}$; function

5) D: $(-\infty, \infty)$; R: $[0, \infty)$; function

6) D: $\{x | \text{all real numbers}\}$; R: $\{y | \text{all real numbers}\}$; function

7) D: $(-\infty, \infty)$; R: $[-6, \infty)$; function

8) D: $[0, \infty)$; R: $[0, \infty)$; function

9) D: [-4, 4]; R: [-3, 5]; not a function

10) D: $\{x | -3 < x \leq 1\}$; R: $\{y | -4 \leq y \leq 0\}$; function

11) D: $(-\infty, 3]$; R: $\{-3, \infty)$; not a function

12) D: $\{x | \text{all real numbers}\}$; R: $\{y | y \leq -2\}$

**Note on intervals for increasing and decreasing: Different textbooks handle the intervals in two main methods. Some textbooks use closed intervals (look of the definition of increasing/decreasing to get an idea as to WHY), while most using exclusively open intervals. We have used open intervals only below.*

13) increasing on (0, 1); decreasing $(-\infty, 0)$

14) increasing on (-4, -3) and (0, 3); decreasing on (-3, 0)

15) increasing on (-2, 0); decreasing on (-3, -2) and (0, 1)

16) 3

Practice Test ANSWERS

1) -16

2) 11

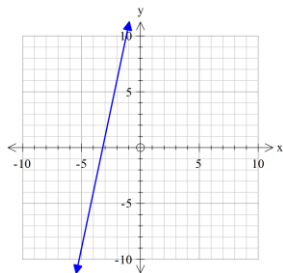
3) $x - 16$

4) $-10x^3 - 25x^2$

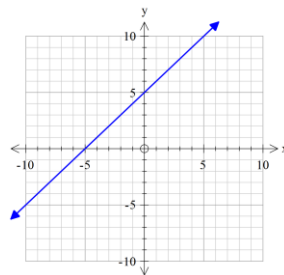
5) $20x^2 + 100x + 125$

6) -62

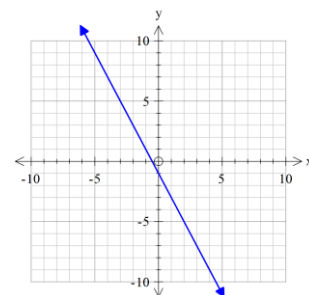
7)



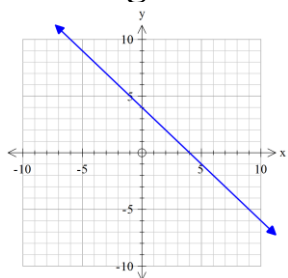
8)



9)



10)



11) $y = 2x + 17$

12) $x = -2$

13) $(15, -8)$

14) $(3, -2, 1)$

15) 6 dimes and 8 nickels

16) D: all real #s; R: all real #s

17) increasing

18) y-int at 0; x- int at 0 19) 2 (or 2/1)

20) Set- D: $\{x | -2 \leq x < 3\}$ R: $\{y | -7 \leq y < 8\}$ Interval- D: $[-2, 3)$ R: $[-7, 8)$

21) Set- D: $\{x | x > -1\}$ R: $\{y | y \geq -4\}$ Interval- D: $(-1, \infty)$ R: $[-4, \infty)$

22) D

23) G

24) H

25) F

26) A

27) C

28) E

29) J

30) L

31) B

32) K

33) I

34) 2; 1

USE THESE FOR QUESTIONS 22-33 IN Practice Test

