

Semester 1 Final**Scientific calculators are allowed, NO GRAPHING CALCULATORS.****You must show all your work to receive full credit.**

(F.IF.2 DOK 1) (1 point)

1. Evaluate the function when
- $x = 7$
- .

$$f(x) = 3x + 1$$

(F.IF.2 DOK 1) (1 point)

2. Given the function:
- $f(x) = |x - 8| + 2$
- , find
- $f(-9)$

(F.IF.2 DOK 2) (2 points)

3. At the local movie theatre movie tickets cost \$7.50 each. Write a rule in function notation that could represent the total cost as a function of the number of tickets purchased. Let
- x
- represent the number of tickets

(F.IF.2 DOK 2) (2 points)

4. Write a rule in function notation that represents the table.

x	-2	0	2	4
$f(x)$	3	5	7	9

(F.IF.2 DOK 3) (3 points)

5. A monthly gym membership costs \$65. Each class costs an additional \$8.00. Let
- x
- represent the number of classes. Write a rule in function notation that represents the total cost as a function of the number of classes taken.

_____ (2 pts)

Find the total cost for 23 classes.

_____ (1 pt)

(F.IF.2 DOK 3) (6 points)

6. Ben has 10 balloons for a graduation party decoration. In addition, he is planning to buy some balloon arrangements that have 4 balloons each. Write a rule in function notation to describe the possible number of balloons Ben will use for decorations. Let x represent the number of balloon arrangements Ben buys.

Function: _____ (2 pt)

Find the total number of balloons Ben would have if he purchased 0, 1, 2, and 3 arrangements. (4 pts)

0 arrangement: _____

1 arrangement: _____

2 arrangements: _____

3 arrangements: _____

(A.REI.3 DOK 1) (2 points)

7. Solve each equation.

a. $-2x = 6$

b. $x + 7 = 4$

(A.REI.3 DOK 2) (3 points)

8. Solve each inequality.

a. $11 < x - 2$

b. $-3x > 21$

(A.REI.3 DOK 3) (6 points)

9. Solve each equation.

a. $4(2x + 5) = 3x + 2$

b. $12x + 3(x - 5) = 45$

(A.REI.3 DOK 3) (3 points)

10. Multiple Choice:

Solve the inequality: $-5(3w - 2) \geq 2w - 7$

- A. $w \leq 0$
- B. $w \leq 3/17$
- C. $w \leq 3/13$
- D. $w \leq 1$

(A.SSE.1 DOK 1) (2 points)

11. Translate each expression into words

a. $4 - n$

b. $12p$

(A.SSE.1 DOK 1) (2 points)

12. Write the algebraic expression for each verbal expression

a. the quotient of x and 7

b. the sum of 9 and y

(A.SSE.1 DOK 2) (5 points)

13. Simplify each expression:

a. $-3(7x - 5)$

b. $2(3x - 5) - 8$

(A.SSE.1 DOK 3) (5 points)

14. Juan has already saved \$135. He saves an additional \$35 a week. Write an expression to determine the amount of money he will have saved after w weeks.

_____ (3 pts)

How much money will Juan have saved after 9 weeks?

_____ (2 pts)

(A.SSE.1 DOK 3) (3 points)

15. Becky makes \$9 per hour. Write an expression to determine the amount money Becky will make after h hours.

_____ (2 pts)

How much money will Becky have earned after working 40 hours?

_____ (1 pts)

(A.CED.1 DOK 1) (3 points)

16. Johnny drives 60 miles per hour. Write an equation that gives the total distance traveled after x hours.

_____ (2 pts)

How far did Johnny travel after driving for 5 hours?

_____ (1 pt)

(A.CED1. DOK 1) (3 points)

17. Rachel plans to save \$50 every month. Write an equation that gives the total amount Rachel will save after m months.

_____ (2 pts)

How much money will she have saved after 18 months?

_____ (1 pt)

(A.CED.1 DOK 2) (4 points)

18. Ned wants to buy apples which cost \$2.50 per pound. He cannot spend more than \$12. Write an inequality that represents this situation.

_____ (2 pts)

Solve your inequality to determine the possible pounds of apples Ned could purchase.

_____ (2 pts)

(A.CED.1 DOK 2) (4 points)

19. Lisa has 3 bottles of water. Together Annie and Lisa have at most 11 bottles of water. Write an inequality that represents the situation.

_____ (2 pts)

Write an inequality to determine the possible number of water bottles that Annie could have in her possession.

_____ (2 pts)

(A.CED.1 DOK 3) (6 points)

20. Derek works at a car dealership, he earns \$200 per day plus 10% commission of his daily sales, s . Derek wants to make more than \$400 per day. Write an inequality that shows all possible values for his sales, s .

_____ (3 pts)

Solve the inequality for all possible values for his sales, s .

_____ (2 pts)

(A.CED.1 DOK 3) (5 points)

21. Joanna bought 5 pounds of apples at \$2.50 per pound. She would also like to buy bananas which cost \$1.50 per pound. Write an equation that would determine the number of pounds, p , of bananas that Joanna could buy if she only had \$17 for apples and bananas.

_____ (3 pts)

Solve the equation to determine how many pounds, p , of bananas Joanna purchased if she spent a total of \$17.00.

_____ (2 pts)

(A.CED.2 DOK 1) (3 points)

22. Write the equation, in slope-intercept form, for the line with the given information.

a. slope is 2 and y-intercept is -7

b. slope is -3 and passes through (0, 8)

c. slope is 0 and y-intercept of 3

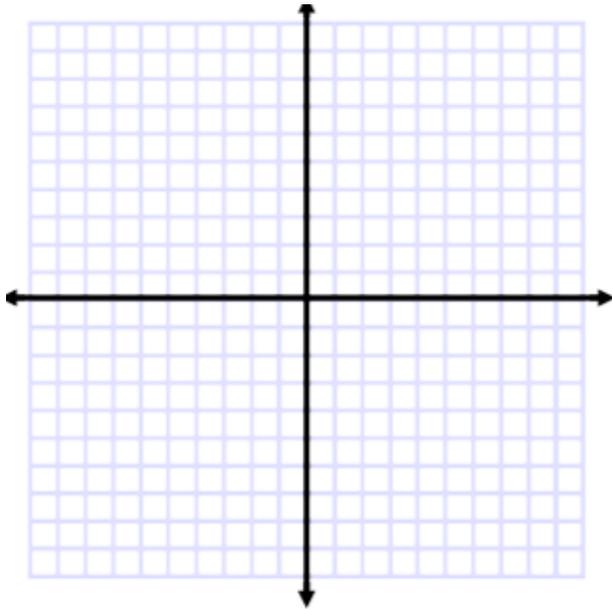
(A.CED.2 DOK 2) (3 points)

23. Write the equation for the line in slope-intercept form that passes through the point (-2, 5) and has a slope of -4.

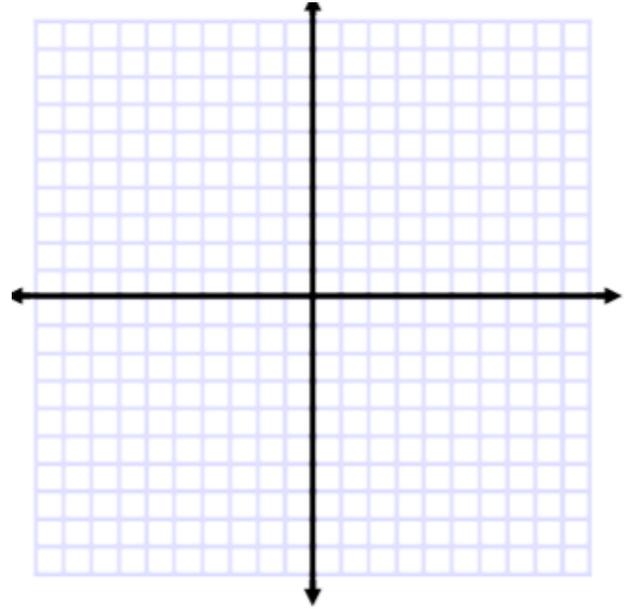
(A.CED.2 DOK 2) (4 points)

24. Graph the following equations.

a. $y = 3x - 4$



b. $y = -1/4x + 2$



(A.CED.2 DOK 3) (5 points)

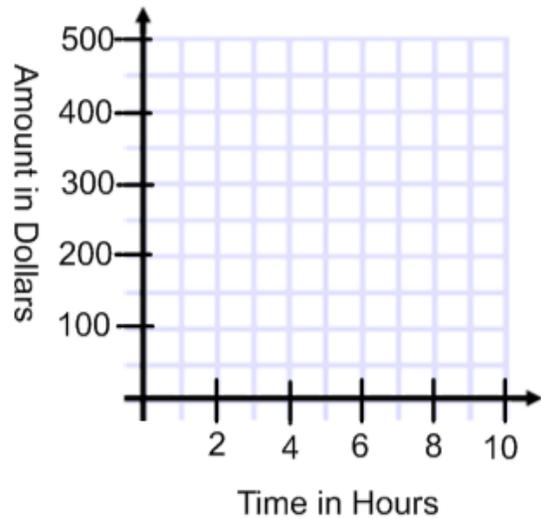
25. Given the points (5, -2) and (-6, 9). Write an equation in slope-intercept form.

(A.CED.2 DOK 3) (5 points)

26. The school is hiring DJ Dan for Prom. DJ Dan charges \$250 to set up, and then \$50 an hour. Write an equation that gives the total amount earned, y , as a function of the number of hours, x , he worked for Prom.

_____ (3 pts)

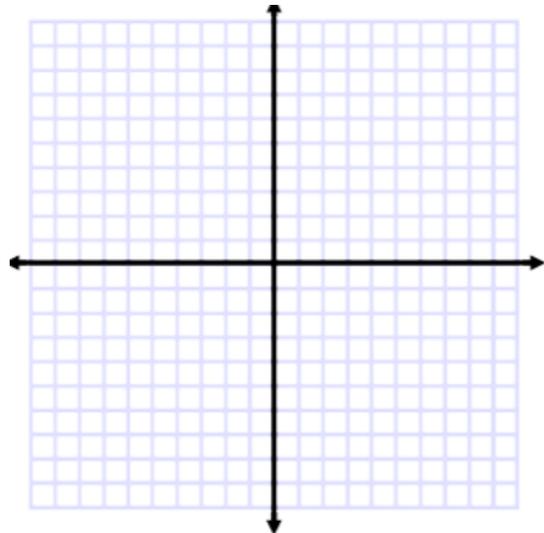
Graph the equation on the given coordinate graph. (2 pts)



(A.CED.2 DOK 3) 4 points

27. Graph the equation on the coordinate graph.

$$6x + 3y = -21$$



(A.CED.4 DOK 2) (1 point)

28. $4y = 2x - 24$, solve for y .

(A.CED.4 DOK 2) (1 point)

29. $D=rt$ Solve for t .

(A.CED.4 DOK 3) (2 points)

30. $P = 2w + 2l$ Solve for w .

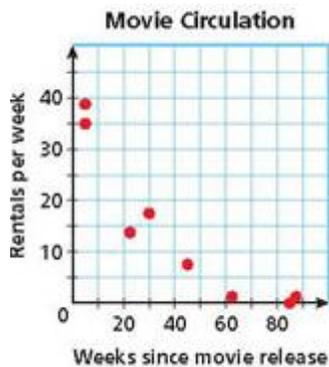
(A.CED.4 DOK 3) (2 points)

31. $6x - 3y = 18$, solve for y .

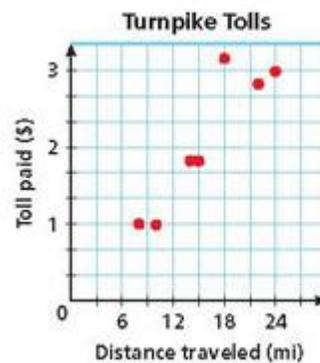
(S.ID.6 DOK 1) (2 points)

32. Describe the correlation for each graph.

a.

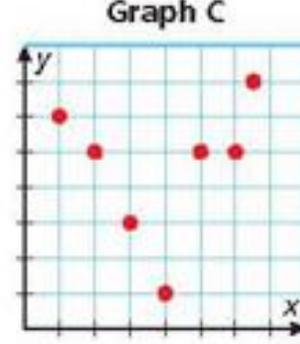
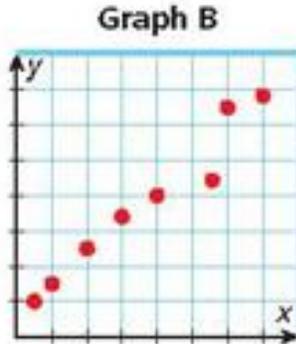
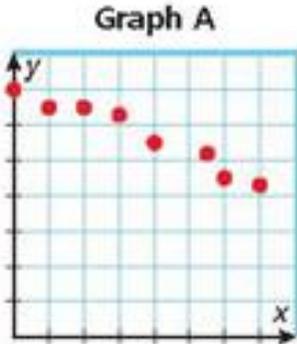


b.



(S.ID.6 DOK 2) (4 points)

33. Choose the scatter plot that represents the described relationship, explain.



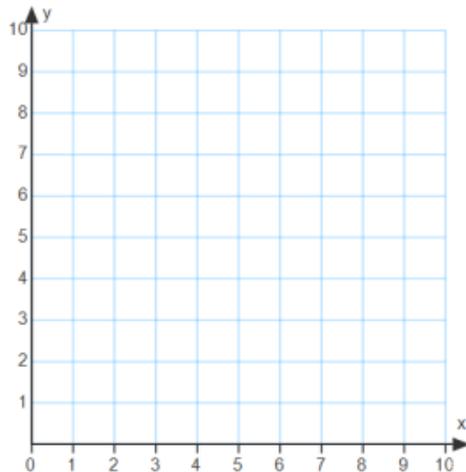
a. The number of books read each month.

b. The amount of gas left in the car's gas tank after driving x miles.

(S.ID.6 DOK 3) (7 points)

34. Graph a scatter plot using the data. (2 pts)

x	3	6	5	2	7	4	8	7	2	1
y	4	6	6	3	6	4	8	7	4	4



Use the points (7, 7) and (3, 4) to draw the line of best fit. (1 pt.)

Write a linear equation for the line of best fit. (4 pts)

(N.Q.1 DOK 1) (1 point)

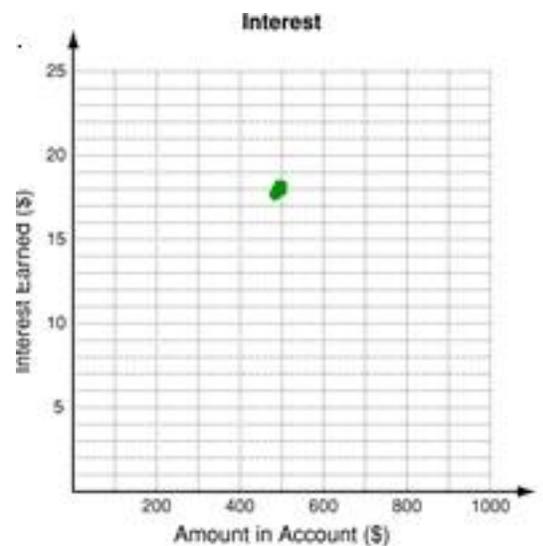
35. Given the equation: $D = rt$, where the rate is given in miles per hour and time is given in hours. What would be the units for the distance?

(N.Q.1 DOK 2) (2 points)

36. Josh can run 200 yards per minute. How many feet can Josh run per minute? (Be sure to include units in your answer)

(N.Q.1 DOK 2) (2 points)

37. Given the graph. State the values of the x-coordinate and y-coordinate for the point. (Be sure to include units)



(N.Q.1 DOK 3) (3 points)

38. The fuel for a lawn mower is a mix of oil and gasoline. The ratios of ounces of oil to gallons of gasoline is 1:45. There are 6 gallons of gasoline. How many ounces of oil are needed for the mixture? Round your answer to the nearest hundredth.

(N.Q.1 DOK 3) (3 points)

39. Given the formula for force, $F = ma$, where m represents the mass in grams (g), and a represents acceleration in meters (m) per second (s) squared. What are the units of force?

(N.Q.1 DOK 3) (2 points)

40. Wendy is earning money to go on a trip to Paris. She has currently saved \$1,200. She will earn \$600 a week for the next 7 weeks.

Let x represent the number of weeks and let y represent the total amount saved in dollars.

If you were to create a graph that represents the amount of money Wendy has saved what is the best scale for the y-axis given that the scale for the x-axis is $0 \leq x \leq 7$ weeks.

- A. $\$0 \leq y \leq \$1,200$
- B. $\$1,200 \leq y \leq \$1,800$
- C. $\$0 \leq y \leq \$5,400$
- D. $\$1,800 \leq y \leq \$5,400$

Scoring Guideline

Note: -1/2 point for missing units.

-1/2 point for incorrect sign.

1. $f(7) = 22$ (1 point)
2. $f(-19) = 19$ (1 point)
3. $f(x) = 7.5x$ $f(x)$ (1 point); $7.5x$ (1 point)
4. $f(x) = x + 5$ $f(x)$ (1 point); $x + 5$ (1 point)
5. $f(x) = 8x + 65$ $f(x)$ (1 point); $8x + 65$ (1 point)
\$49 (1 point)

6. $f(x) = 4x = 10$ $f(x)$ (1 point); $4x + 10$ (1 point)
10, 14, 18 and 22 balloons (1 point each)

7. a. $x = -3$ (1 point)
b. $x = -3$ (1 point)

8. a. $x > 13$ (1 point)

b. $x < -7$ -7 (1 point); inequality sign (1 point)

9. a. $8x + 20 = 3x + 2$ (1 point)
 $5x = -18$ (1 point)
 $x = -18/5$ (1 point)
b. $12x + 3x - 15 = 45$ (1 point)

 $15x = 60$ (1 point)

 $x = 4$ (1 point)

10. Answer D (3 points)
11. a. Example: n less than 4 (1 point)
b. Example: Product of 12 and p (1 point)

12. a. $x/7$ (1 point)

b. $9 + y$ (1 point)

13. a. $-21x + 15$ $-21x$ (1 point); 15 (1 point)

b. $6x - 10 - 8$ $6x$ (1 point); -10 (1 point)

 $6x - 18$ (1 point)

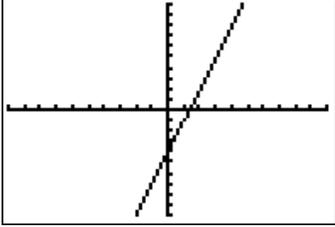
14. $35w + 135$
 $\$450$
3w (1 point); 135 (1 point); $35w + 135$ (1 point)
(2 points)
15. $9h$
 $\$360$
(2 points)
(1 point)
16. $d = 60x$
300 miles
 $60x$ (1 point); $d = 60x$ (1 point)
(1 point)
17. $A = 50m$
 $50m$ (1 point)
 $A = 50m$ (1 point)
 $\$900$ (1 point)
18. $2.5x \leq 12$
 $x \leq 4.8$ lbs.
 $2.5x$ (1 point); ≤ 12 (1 point)
4.8 lbs. (1 point)
Correct inequality sign (1 point)
19. $x + 3 \leq 11$
 $x \leq 8$ bottles
 $x + 3$ (1 point); ≤ 11 (1 point)
8 bottles (1 point)
Correct inequality sign (1 point)
20. $0.1s + 200 > 400$
 $S > \$2000$
 $0.1s + 200$ (2 points); > 400 (1 point)
 $\$2000$ (1 point)
Correct inequality sign (1 point)
21. $1.5p + 12.5 \leq 17$
 $p \leq 3$ lbs.
 $1.5p + 12.5$ or $1.5p + 5(2.5)$ (2 points)
 ≤ 17 (1 point)
3 lbs. (1 point); inequality sign (1 point)

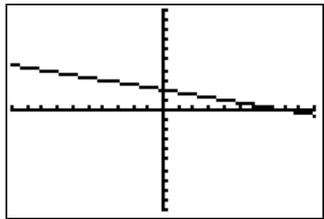
22. a. $y = 2x - 7$ (1 point)

b. $y = -3x + 8$ (1 point)

c. $y = 3$ (1 point)

23. $y = -4x - 3$ (1 point)

24.  a. 2 points (1 point each)



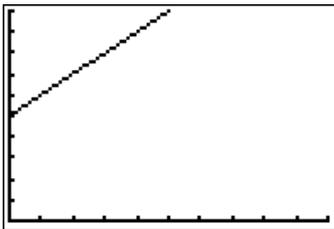
b. 2 points (1 point each)

25. $m = -1$ slope (2 points)

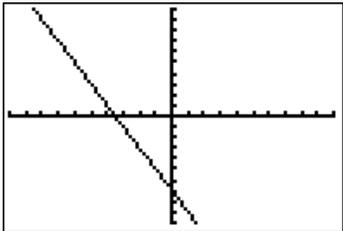
$y = -x + 3$ equation (3 point)

26. $y = 50x + 250$ $50x + 250$ (2 points)

$y = 50x + 250$ (1 point)



Graph (2 points)

27.  2 points (2 points each)

28. $y = 1/2x - 6$ (1 point)

29. $D/r = t$ (1 point)

30. $P - 2l = 2w$ Subtract 2l (1 point)

$p/2 - l = w$ Divide by 2 (1 point)

31. $-3y = -6x + 18$ Subtract 6x (1 point)

$y = 2x - 6$ Divide by -3 (1 point)

32. a. negative correlation (1 point)

b. positive correlation (1 point)

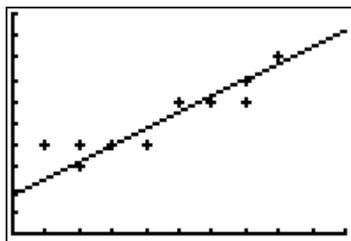
33. a. Graph C (1 point)

The number of books read each month can vary each month. (1 point)

b. Graph A (1 point)

The amount of gas in the tank as the number of miles increases. (1 point)

34.



graph (2 points)

line of best fit (1 points)

$m = 3/4$ slope (2 points)

$y = 3/4x + 7/4$ equation (2 points)

35. miles units (1 point)

36. 600 ft. per min 600 (1 point); units (1 point)

37. x-coordinate = \$500 (1 point)

y-coordinate = \$18 (1 point)

38. 0.13 ounces (3 points) and incorrect rounding (-1 point)

39. (gm)/s²

units (3 points)

40. C

(2 points)