

1. Evaluate each of the given expressions. (no calc)

a) $7 + y^2$, when $y = -2$

b) $\frac{2m+9}{m}$, when $m = 2$

2. Write an equation or inequality to represent each sentence.

a) The sum of twice a number d and 3 is 12.

b) The product of 8 and a number q is at least 32.

c) The difference of a number r and the square of a number t is no less than the product of 18 and x .

3. Check whether a given number is a solution to the equation or inequality.

a) $k - 8.2 < 10$; $k = 2$

b) $\frac{108}{x^2} + 4x = 27$; $x = 6$

4. Evaluate each expression completely (no decimals). (no calc)

a) $3[1^2(5-3+1)^3 \div 9]$

b) $16 \div (4-2) - 3$

c) $\left(\frac{2}{3}\right)^2$

5. Classify each number as whole, rational, integer, and/or irrational.

a) $\sqrt{12}$

b) $\frac{5}{3}$

c) -4

d) $1.4523980144..$

e) 0

6. Simplify each completely (no decimals / no calc).

a) $12 - (-7)$	b) $-15 - (-9)$	c) $(-12) + (-4)$	d) $12 + (-4)$
e) $-7\frac{1}{2} + 10\frac{3}{4}$	f) $-6.8 + -4 + 2.6$	g) $-6(4)(1.3)$	h) $-\frac{1}{3} \div \frac{1}{5}$

7. Evaluate each if $x = 3$, $y = \frac{1}{2}$, $z = -4$. (no calc)

a) $x + y - z$	b) $x - z$	c) $3y - z $	d) $-\frac{y}{z}$
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8. Simplify the expression $\frac{-8x + 27}{9}$.

9. Approximate the square root of each (no calc).

a) $\sqrt{12}$	b) $\sqrt{63}$	c) $\sqrt{3}$	d) $2\sqrt{10}$
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10. Solve each equation. No decimal answers unless there are decimals in the given problem.

a) $-7 = -2 + x$

b) $b - \frac{2}{5} = \frac{3}{5}$

c) $7m - 4 - 2m = 6$

d) $\frac{-7}{4}(x+4) = 3$

e) $4x - 1 = 2(2x + 3)$

f) $9 - 5z = 12 - (5z + 3)$

g) $\frac{1.1}{2.2} = \frac{x}{3.6}$

h) $\frac{8}{y+3} = \frac{4}{y}$

i) $\frac{6+x}{5} = \frac{x-8}{15}$

11. Sam works as a dental hygienist. Last week Sam made \$500 for 20 hours of work. How many hours must Sam work in order to make \$700? Write and solve a proportion.

12. What percent of 150 is 30?

13. What number is 65% of 92?

14. The sale price of a jacket you want is \$55.25 after a 35% discount. What was the original price?

15. What is the first step in solving the equation $5 + \frac{12}{x} = -1$?

16. Plot the points (and label) on the coordinate system and state the quadrant in which it belongs.

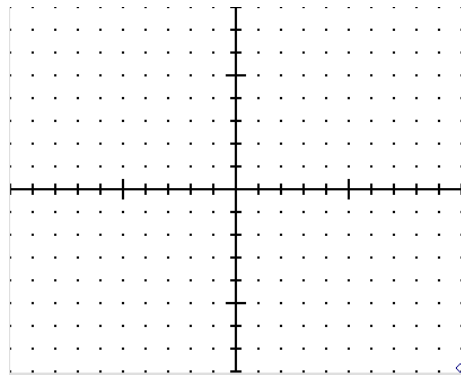
a) (-3, 0)

b) (1.5, 6)

c) (0, 4)

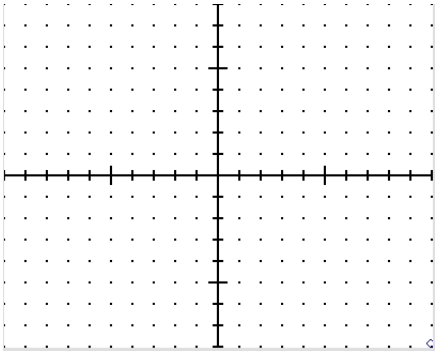
d) (-5, -2)

e) (6, -3)

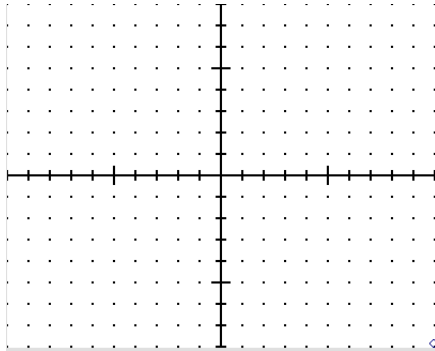


17. Graph the following equations.

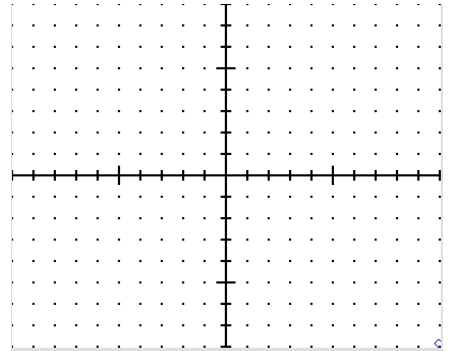
a) $y = \frac{1}{3}x - 5$



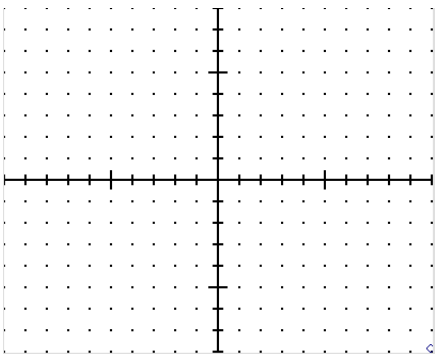
b) $y = -x + 2$



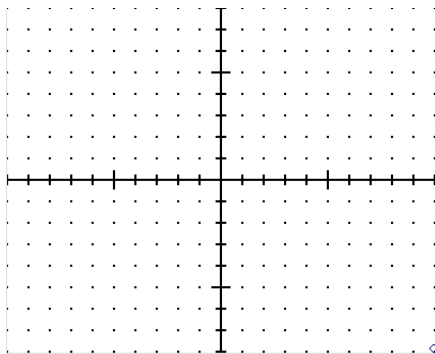
c) $y = 4x$



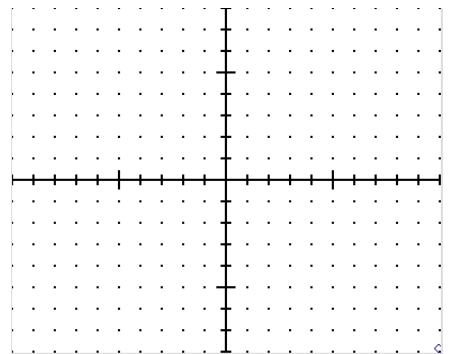
d) $y = 2$



e) $x = 4$



f) $2x + 6y = 12$



18. What is the general linear equation in standard form?

19. What is the general linear equation in slope-intercept form?

20. Rewrite the following equations in slope-intercept form.

a) $3y = 12x + 9$

b) $\frac{1}{2}x + 5y = 15$

c) $-6y - 8x = 16$

21. What are the x and y intercepts of the line with the equation $-4x + 7y = 2$?

22. What is the slope of the line with the equation $-4x + 7y = 2$?

23. Solve each equation for the given variable.

a) $V = lwh$; Solve for w

b) $A = \frac{1}{2}(b_1 + b_2)h$; solve for b_1

24. Find the slope of the line containing the given points.

a) $(3, 8), (-4, 5)$

b) $(-2, 9), (-3, -18)$

c) $(0, 5), (-4, 5)$

25. Write an equation of a line that passes through the given points.

a) $(2, -6), (-1, 9)$

b) $(7, 12), (7, 9)$

c) $(2, -13), (-3, 12)$

26. Write an equation for the lines shown.

a)

b)

27. Write an equation of a line that passes through $(-4, 3)$ and has a slope of $\frac{1}{2}$.

28. Write an equation of a line that is parallel to $y = \frac{3}{4}x + 10$ and passes through $(-3, -5)$.

29. Write an equation of a line that is perpendicular to $y = \frac{3}{4}x + 10$ and passes through (6, 0).

30. Write an equation of a line that is perpendicular to $2x + 7y = 14$ and passes through (-4, -1).

31. Solve the following systems by the method indicated. (Check your answers)

a)
$$\begin{aligned} x + 2y &= 7 \\ 3x - 2y &= 5 \end{aligned}$$
 (graphing)

b)
$$\begin{aligned} -5x + y &= 0 \\ 5x + y &= 10 \end{aligned}$$
 (substitution)

c)
$$\begin{aligned} x - y &= 7 \\ 3x - y &= 5 \end{aligned}$$
 (elimination)

d)
$$\begin{aligned} -4x + 10y &= 12 \\ 2x - 5y &= 6 \end{aligned}$$
 (elimination)

32. Which of the following systems has exactly one solution?

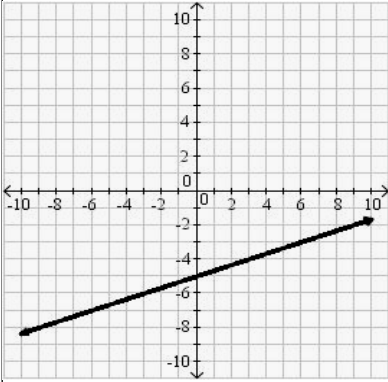
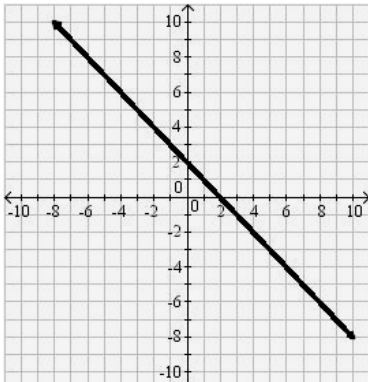
- a) $5x + 3y = -22$
 $4x - 5y = 12$
- b) $2x + 3y = 45$
 $2y + \frac{4}{3}x = 30$
- c) $2x - 3y = -15$
 $\frac{2}{3}x - y = 3$
- d) $x + y = 2$
 $\frac{1}{2}x + \frac{1}{2}y = 1$

33. Which one of the above systems has no solutions?

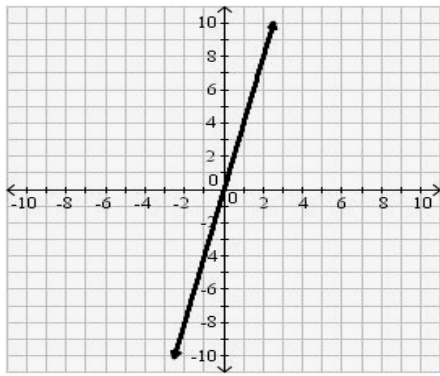
34. On Monday, the office staff at a school paid \$8.77 for 4 cups of coffee and 7 bagels. On Wednesday, the staff paid \$15.80 for 8 cups of coffee and 14 bagels. What is the cost of 1 bagel? (You must write a system of equations to solve).

35. A hotel rents a double occupancy room for \$20 more than a single occupancy room. One night, the hotel took \$3115 after renting 15 double occupancy rooms and 26 single occupancy rooms. Write and solve a system of linear equations to find the cost of renting each type of room.

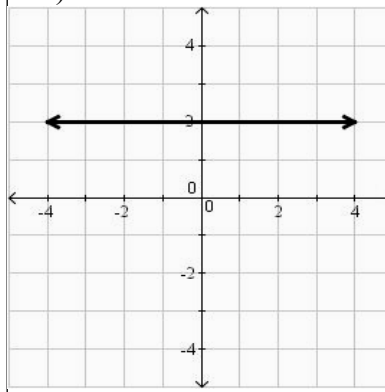
Review for Finals – Answers

1a) 11	1b) $\frac{13}{2}$	2a) $2d + 3 = 12$	2b) $8q \geq 32$	2c) $r - t^2 \geq 18x$	3a) yes
3b) yes	4a) 9	4b) 5	4c) $\frac{4}{9}$	5a) irrational	5b) rational
5c) integer, rational	5d) irrational	5e) whole, integer, rational	6a) 19	6b) -6	6c) -16
6d) 8	6e) $\frac{13}{4}$	6f) -0.2	6g) -31.2	6h) $-\frac{5}{3}$	7a) $\frac{15}{2}$
7b) 7	7c) $-\frac{5}{2}$	7d) $\frac{1}{8}$	8) $-\frac{8}{9}x + 3$	9a) ≈ 3.4	9b) ≈ 7.9
9c) ≈ 1.8	9d) ≈ 6.2	10a) -5	10b) 1	10c) 2	10d) $-\frac{40}{7}$
10e) no solutions	10f) \mathbb{R}	10g) 1.8	10h) 3	10i) -13	11) 28
12) 20%	13) 59.8	14) \$85	15) Subtract 5		
16) a) None b) I c) None d) III e) IV	17a) 		17b) 		

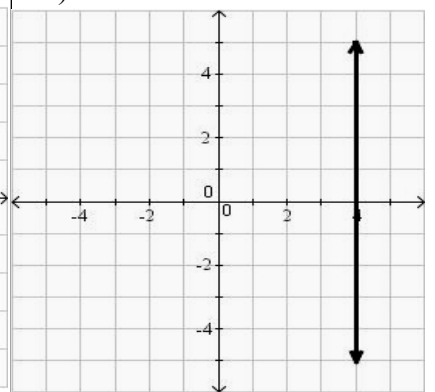
17c)



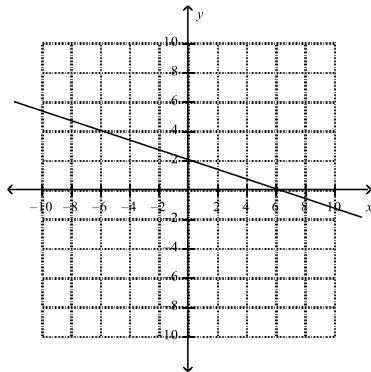
17d)



17e)



17f)



18) $ax + by = c$

19) $y = mx + b$

20a) $y = 4x + 3$

20b) $y = -\frac{1}{10}x + 3$

20c) $y = -\frac{4}{3}x - \frac{8}{3}$

21) x-int: $\left(-\frac{1}{2}, 0\right)$, y-int: $\left(0, \frac{2}{7}\right)$

22) $\frac{4}{7}$

23a) $w = \frac{V}{lh}$

23b) $b_1 = \frac{2A}{h} - b_2$

24a) $\frac{3}{7}$

24b) 27

24c) 0

25a) $y = -5x + 4$

25b) $x = 7$

25c) $y = -5x - 3$

26a) $y = -3x$

26b) $y = \frac{2}{3}x + 3$

27) $y = \frac{1}{2}x + 5$

28) $y = \frac{3}{4}x - \frac{11}{4}$

29) $y = -\frac{4}{3}x + 8$

30) $y = \frac{7}{2}x + 13$

31a) (3, 2)

31b) (1, 5)

31c) (-1, -8)

31d) No solutions

32) a

33) c

34) $4c + 7b = 8.77$
 $8c + 14b = 15.80$
No solution

35) $d = s + 20$
 $15d + 26s =$
3115 about \$68
for single, and
\$88 for double