**Math 7 Review**

Compute. ***No calculator #1-48***

1) $-\frac{1}{3}+\frac{1}{8}$

2) $-\frac{5}{6}-\frac{4}{5}$

3) $4\frac{1}{2}-(-3\frac{1}{4})$

4) $\frac{-3}{8}-\frac{1}{40}$

5) $4\frac{5}{6}-6\frac{1}{5}$

6) $-7\frac{1}{6}+3\frac{1}{3}$

7) $1\frac{1}{3}\cdot\frac{2}{7}$

8) $-\frac{1}{3}(\frac{3}{4})(-\frac{4}{5})$

9) $5\frac{1}{2}\cdot-1\frac{2}{3}$

10) $\frac{1}{2}\div-\frac{1}{4}$

11) $-12\ \div\frac{-3}{4}$

12) $-5\frac{1}{2}\div\ 1\frac{1}{3}$

13) Choose all of the expressions equivalent to $-\frac{1}{2}$

a) $\frac{-1}{-2}$

b) $\frac{-1}{2}$

c) $\frac{1}{-2}$

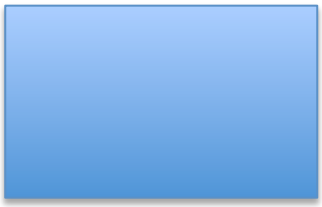
d) $\frac{1}{2}$

14) Find the area and perimeter of the figures below.

a)

$2\frac{1}{8} feet$

$1\frac{3}{4} feet$



Perimeter: _____ Area: _____

b)

$17\frac{1}{4} yards$

$5\frac{1}{2} yards$

Perimeter: _____ Area: _____

c)

3.8 in

4.2 in

3.7 in

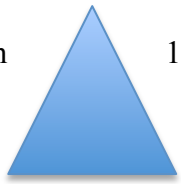
Perimeter: _____ Area: _____

d)

12.4 cm

12.4 cm

The height of the triangle is 10.74 cm.



12.4 cm

Perimeter: _____ Area: _____

15) -80.401 – (- 44.23)

16) $2.457 \cdot 1.8$

17) $-31.8 / -3$

18) $(-2.25)\ (-0.02)$

19) -75.89 – 9.4

20) -70( 0.13)

21) 5.1(2)

22) (-2.5) + (-0.108)

23) -338.38 – (-129.27)

24) $-7.45/\ 0.5$

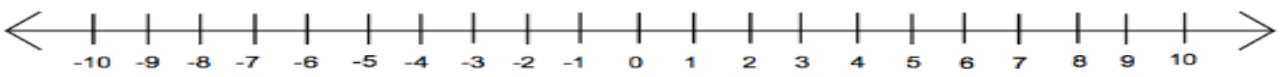
25) $12.24 + (-0.12)$

26) Identify the integers in the following list of numbers: -2, 5.6, 21, -56 and 0.18

27) Write $\frac{2}{5}$ as a decimal.

28) Write $4\frac{3}{8}$ as a decimal.

29) Put a dot on the number line at the best approximation for the location of $-\sqrt{18}$




Simplify.

30) $58 \div (8 + 17 - 11 + 15)$

31) $\frac{[(6+7)(3)+33]}{3}$

32) $20 - 5 - 72 \div 8 + 3$

33) $1 + 4 \cdot 1\frac{1}{5}$

34) $1\frac{1}{2} - \frac{3}{2} \div 3\frac{1}{6}$

Evaluate **#33-38** when x = -5, y = ½ and z = 0.4

35) $-3x + 4$

36) $4z - 3x + xy$

37) $x - y^2$

38) $\frac{x}{y} + z$

39) $z^2 - y - x$

Simplify.

40) $-8(9+3x)+8(20+7x)$

41) $-19(20m-14)+19(m-8)$

42) $7(1-13a)+17(3a-8)$

43) $10(k+3)+14(10-5k)$

Solve.

44) $\frac{1}{4}p = 6-\frac{1}{2}p$

45) $5y = 6(3-y)-(4y-7)$

46) $-4(-5n+1) = 116$

47) $-x-5(x+8) = -42$

48) $8+8k = -2(-2k+5)+7k$

***You may use a calculator in numbers 49-88.***

49) The scale on a map of Massachusetts is 3 inches:45 miles. The distance between Boston and Needham is 20 miles. What is the distance between Boston and Needham on the map? (Leave your answer as a mixed number.)

50) A truck gets 600 miles on 50 gallons of gasoline. Write this as a unit rate.

51) To make rice, ½ cup of rice is added to 1 cup of water. How many cups of water are needed for 5 cups of rice?

52) Which is the better buy? 15 candy bars for $65; 12 candy bars for $51.60

53) Which is the better buy? 8 movie tickets for $54; 9 movie tickets for $60

54)Express 40% as a fraction in simplest form.

55)Express 83% as a decimal.

56) Express 0.07% as a decimal.

57) Express 0.08 as a percent.

58) Express 2.2 as a percent.

59) Express 236% as a mixed number in simplest form.

60) Estimate 5% of 59.

61) Estimate 33% of 119.

62) What number is 60% of 80?

63) What number is 65% of 300?

64) What number is 21% of 450?

65) 72 is 48% of what number?

66) Find 45% of 360.

67) 441 is 63% of what number?

68) What percent is 45 out of 225?

69) 21 out of 25 is what percent?

70) A student's score was 80% on a math test that had 20 problems. If all of the problems on the test were worth the same number of points, how many problems did the student answer correctly?

71) There are 36 carpenters working on my house. On a certain day, 30 were present. What percent were there? (round to the nearest whole percent)

72) A metal bar weighs 8.15 ounces. 90% of the bar is silver. How many ounces of silver are in the bar?

73) Gabriel found a Corvette. He bought the car for 65% of the original price of $7200. What did he pay for the car?

74) Abbey bought a pair of running shoes at 85% of the regular price. She paid $32.89 for the shoes. What was the regular price? (Round to the nearest cent)

75) A theatre cast is made up of 15 men; the rest are women. 60% of the cast are men. How many people are in the cast?

76) Kayla paid $42 for lunch. If she wants to leave a 20% tip for her server, how much will she pay **in total**?

77) At a sale, shirts were sold for $15 each. This price was 80% of their original price. What was the original price?

78) There are 448 students in 7th grade. One hundred twelve of those students play in the band. What percent **don't** play in the band?

79) The Red Sox played 150 games and won 110 of them. What percent of the games did they **lose**? (round to the nearest tenth)

Solve each proportion.

80) $\frac{x}{9} = \frac{7}{14}$

81) $\frac{3}{x} = \frac{7}{10}$

82) $\frac{x}{8} = \frac{x-9}{11}$

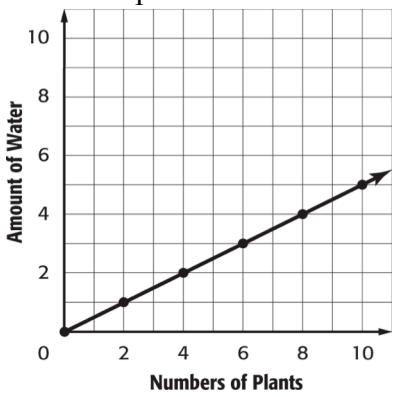
83) What is the constant rate of change of the table below?

| **Hours** | 2 | 4 | 6 | 8 |
|---|---|---|---|---|
| **Miles** | 70 | 140 | 210 | 280 |

**A.** 105 miles per hour **C.** 50 miles per hour

**B.** 70 miles per hour **D.** 35 miles per hour

84) What is the slope of the line?




**F.** $\frac{1}{2}$ **G.** 2 **H.** $\frac{1}{4}$ **I.** 12

85) Dawson rakes leaves in his neighborhood. The equation $y = 10x$ represents the amount of money he earns. What is the constant of proportionality?

**A.** 1 **C.** 10
**B.** 5 **D.** 20

86) Which size can of green beans shown in the table has the lowest unit price?

**A.** 6 oz **C.** 10 oz
**B.** 8 oz **D.** 32 oz

| **Size (oz)** | **Cost ($)** |
|---|---|
| 6 | 0.89 |
| 8 | 1.04 |
| 10 | 1.69 |
| 32 | 4.79 |

87) Bikers were $\frac{1}{2}$ finished with their ride at the 6-mile mark. How long was their ride?

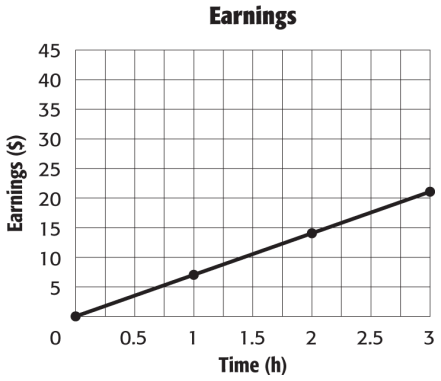
**F.** 4 miles **G.** 6 miles **H.** 9 miles **I.** 12 miles

88) An antelope can run at a speed of 61 miles per hour. What is this speed in yards per second? Round to the nearest hundredth.

**A.** 29.82 yd/s **C.** 89.47 yd/s

**B.** 1,789.33 yd/s **D.** 5,368 yd/s

89) The graph shows the amount of money Amy earns each hour she works. Which statement about the graph is *not* true?




**F.** The graph shows a proportional relationship.

**G.** The graph shows a nonproportional relationship.

**H.** The unit rate is $\frac{\$7.50}{\text{hour}}$.

**I.** The line is straight.

90) The table shows the cost for ordering a certain number of tacos. What is the value of $x$ if the cost is proportional to the number of tacos ordered?

| **Tacos Ordered** | 2 | 3 | 4 | 6 |
|---|---|---|---|---|
| **Cost** | \$2.60 | \$3.90 | \$5.20 | $x$ |

91) If it takes 15 gallons of gas to drive 330 miles, how many miles can be driven using 20 gallons of gas?

92) Sanjay can travel 342 miles in 6 hours. At this rate, how far can he travel in 5 hours?

93) Patty can make 10 purses in 8 hours. At this rate, how many purses can she make in 28 hours?

94) If the regular price of a new T–shirt is \$13.95 and the sale price is \$10.00, find the percent of decrease to the nearest whole percent.

95) 480 people attended the fall concert. 350 people attended the spring concert. What is the percent of change from the fall to the spring? Round to the nearest whole percent.

96) The price of a dozen cookies at a bake sale last year was \$2. This year the price for a dozen of cookies was \$5. What is the percent of change?

97) Kelsey read 75% of the 40 books she bought. How many books has Kelsey completed?

98) Determine the total cost of:

a) $14.95 dinner with a 15% tip.

b) $27.99 shoes with $7\frac{1}{2}$ % tax

c) $16.99 cap with a 20% discount

d) $25.00 game ticket with a 5.5% tax

99) Use the Distributive property to rewrite each expression. Then simplify.

a) (9 - p)3 b) (5y - 3)7 c) 15( f + 1 – 3 ) d) 16(3b - 0.25)

100) Simplify each expression.

a) w + 14w - 6w b) 3(5 + 6h) c) $12b^2 + 9b^2$ d) $3a^2 + 6a + 2b^2$ e) 4(6p + 2q - 2p)

101) Write an algebraic expression for each verbal expression.

a) 4 times the difference of f squared and g

b) 6 increased by the sum of f and 2g

c) 3 times the sum of x squared and 5

d) 5 less than $x$

Solve.

102) $52 = 3x + x + 4$

103) $-26 = -7x - 5x + 10$

104) $-3x - 5 = 2x + 45$

105) $-6x + 5 = -7x + 15$

106) $5x + 4 = -6x + 114$

107) $-10 + 3x = 4x + 2$

108) $3x + 4 = 5x - 8$

109) $-3x + 3 = 75 + 6x$

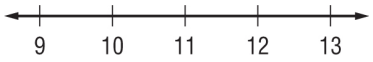
110) $3(3 + 2x) = 33$

111) $-7(10 + 5x) = 5(21 - 8x)$

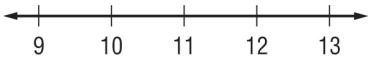
112) Write the following in order from ***least to greatest***: $0.44,\ \frac{3}{8},\ 0.5,\ \frac{2}{5}$

113) Write the following in order from ***least to greatest***: $-0.45,\ \frac{4}{9}, -\frac{1}{2},\ 0.375$

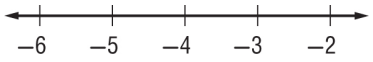
114) $x + 3 > 13$



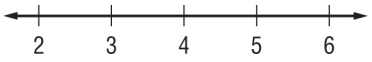

115) $n - 8 \leq 4$



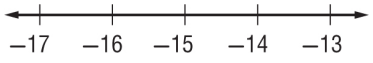

116) $9a \geq -36$



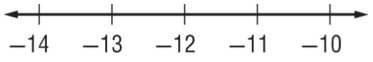

117) $-6m < -24$




118) $\frac{w}{-2} < 8$




119) $\frac{b}{4} + 6 \leq 3$



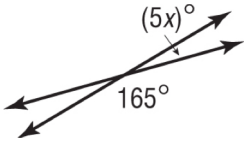
120) The length of each side of a regular pentagon is increased by 8 inches, so the perimeter is now 65 inches. What is the original length of each side of the regular pentagon?

121) Tyler earns $7 per hour working at the library. Write and solve an inequality that can be used to find how many hours he must work in a week to earn at least $175.

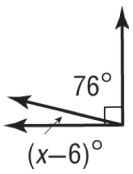
122) It costs Felisa $0.20 to send a text message from her cell phone. She has already spent $5 in text messages this month. If she has a total of $12 that she can spend this month on text messages, write and solve an inequality that will give the greatest number of text messages that she can send.

123) Find the value of $x$ in each figure.

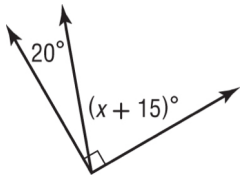
a)



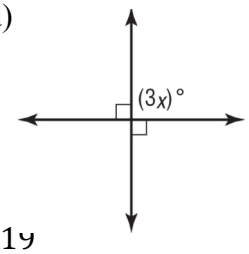

b)




c)

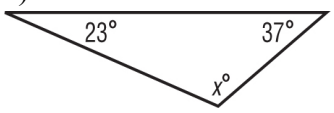



d)

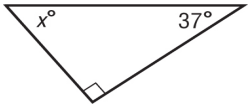


124) Find the missing angle measure in each triangle. Then classify the triangle as *acute, right,* or *obtuse.*

a)




b)

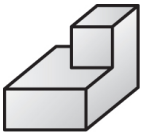



125) A model of a building is made using a scale of 1 inch = 25 feet. What is the height of the actual building if the height of the model is 12.5 inches?

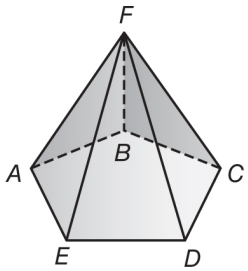
126) Draw a top, a side and a front view of each solid.

a)

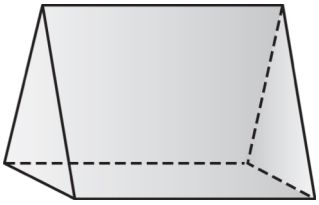
b)



127) Identify the figure below. List the number of faces:____, bases: _____, edges:_____, vertices: _____



128) Describe the shape that would result from a horizontal slice of the figure below.



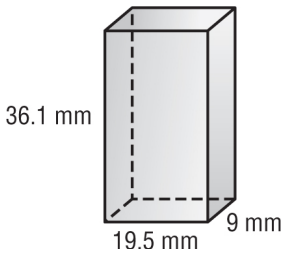
129) Which expression has the greatest value?

**A**. $-|-13|$ **B**. $|-1|$ **C**. $-|-22|$ **D**. $|20|$

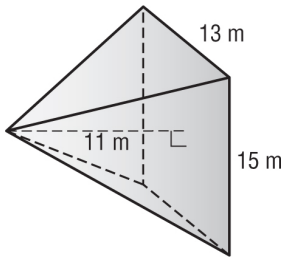
***You may use a calculator and will need the MCAS reference sheet for #130-138.***
http://www.doe.mass.edu/mcas/tdd/resources/2018-g7-math-refsheet.pdf

130) Find the volume of each figure. Round to the nearest tenth, if necessary.

a)



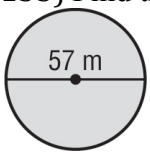

b)



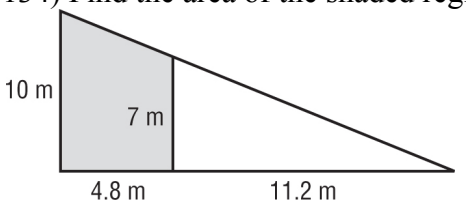

131) A storage shed with a flat roof is 4 yards long by 3 yards wide by $1\frac{1}{2}$ yards tall. A cubic yard is equal to 27 cubic feet. How many cubic feet of storage space does the shed enclose?

132) What is the circumference of a Ferris wheel with a radius of 22.5 ft? Use 3.14 for π.

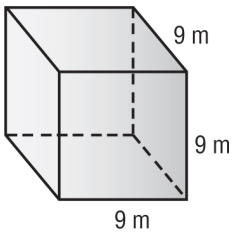
133) Find the area of the circle. Use 3.14 for $\pi$.



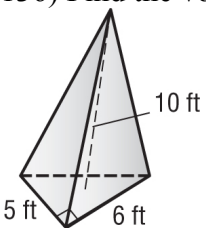

134) Find the area of the shaded region.




135) Find the surface area of the cube.



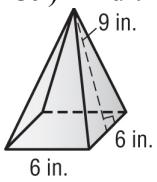
136) Find the volume of the pyramid.




137) A freezer is shaped like a rectangular prism. It has a length of 8 feet and a height of 3 feet. The volume is 54 cubic feet. Find the width of the freezer.

138) A rectangular pyramid has a volume of 210 cubic centimeters. Find two possible sets of measurements for the base area and height of the pyramid.

139) Find the surface area of the pyramid.




140) Drew spun a spinner with 5 equal sections 75 times. Each section of the spinner was a different color. One of the colors was blue. The outcome of "blue" occurred 30 times. Compare the theoretical to the experimental probability of spinning blue.
Experimental Probability:_____ Theoretical Probability: _____

141) Employees at a company are given a three digit employee identification code. If each digit cannot be repeated, how many different codes are possible?

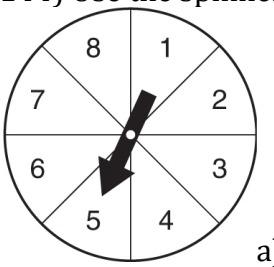
142) For the scenarios below, find the total number of outcomes in each sample space:

a) buying bedroom furniture if you can select one each from 7 dressers, 4 beds, 6 lamps, and 9 night tables

b) tossing a dime, a quarter, a penny, a nickel, ***and*** rolling a number cube

143) How many ways can 4 friends sit together at the movies in 4 seats?

144) Use the spinner to determine each probability.




a) *P*(even number) b) *P*(2 or 3) c) *P*(*not* 4) d) P(prime)

145) A bag contains 4 white beads, 6 red beads, 5 yellow beads, and 5 blue beads. One bead is selected, **kept,** and another bead is selected.

a) Find *P*(blue, then blue) b) Find *P*(white, then red)

146) If Ekoia rolled a number cube 90 times, how many times would you expect her to roll a 2?

147) There are 100 prize tickets in a bowl, numbered 1 to 100. What is the probability that an even numbered prize ticket will be chosen at random, ***not replaced***, then an odd numbered prize ticket will be chosen? Does this represent an independent or dependent event?

148) A survey found that 3 out of 7 people in a community jog on a regular basis. If there are 3,150 people in the community, what is a reasonable prediction for the number of people who would jog regularly?

**F.** 1,050 **H.** 1,575
**G.** 1,350 **I.** 1,800

149) A survey found that 2 out of 8 students **do not** own a pet. If there are 480 students in a school, what is a reasonable prediction for the number of students **who own** a pet?

**A.** 360 **C.** 36
**B.** 120 **D.** 12

150) The number of toys donated by students in 12 classes is shown below. The principal says the average number of toys donated by each class is 26. Explain how this could be misleading.

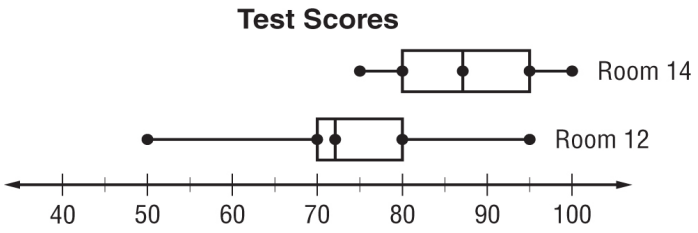
16, 16, 17, 19, 20, 23, 24, 25, 29, 31, 33, 59

151) To determine what park visitors like, every tenth visitor is surveyed at the park entrance. Out of 180 visitors, 22% said they would like to have more walking paths. The park manager concludes that about one-fifth of all park visitors would like to have more walking paths. Is this conclusion valid? Justify your answer.

152) Using the box plot below, determine:

a) Which class had a greater range of scores?_____

b) What is the median score for each room? _____




153) Find the mean, median, and mode of the data.

| Number of Students | | | |
|---|---|---|---|
| 10 | 12 | 15 | 73 |
| 13 | 20 | 12 | 16 |
| 15 | 25 | 9 | |

154) A survey in one middle school showed that 2 out of 9 students help cook meals at home. Predict how many out of the 774 students in the school help cook meals at home.

155) Ekoia wants to know if her neighbors want to hold a neighborhood garage sale. She walks through the neighborhood and asks the people she sees. Because three of the 10 people she saw said *yes*, she concludes that 30% of the people in her town will want to hold a garage sale. Is this conclusion valid? Justify your answer.

156) Complete the following tables for the given equations and graph them in the coordinate grid below. Be sure to label your lines with the appropriate equations.

a) $y = 3x + 1$

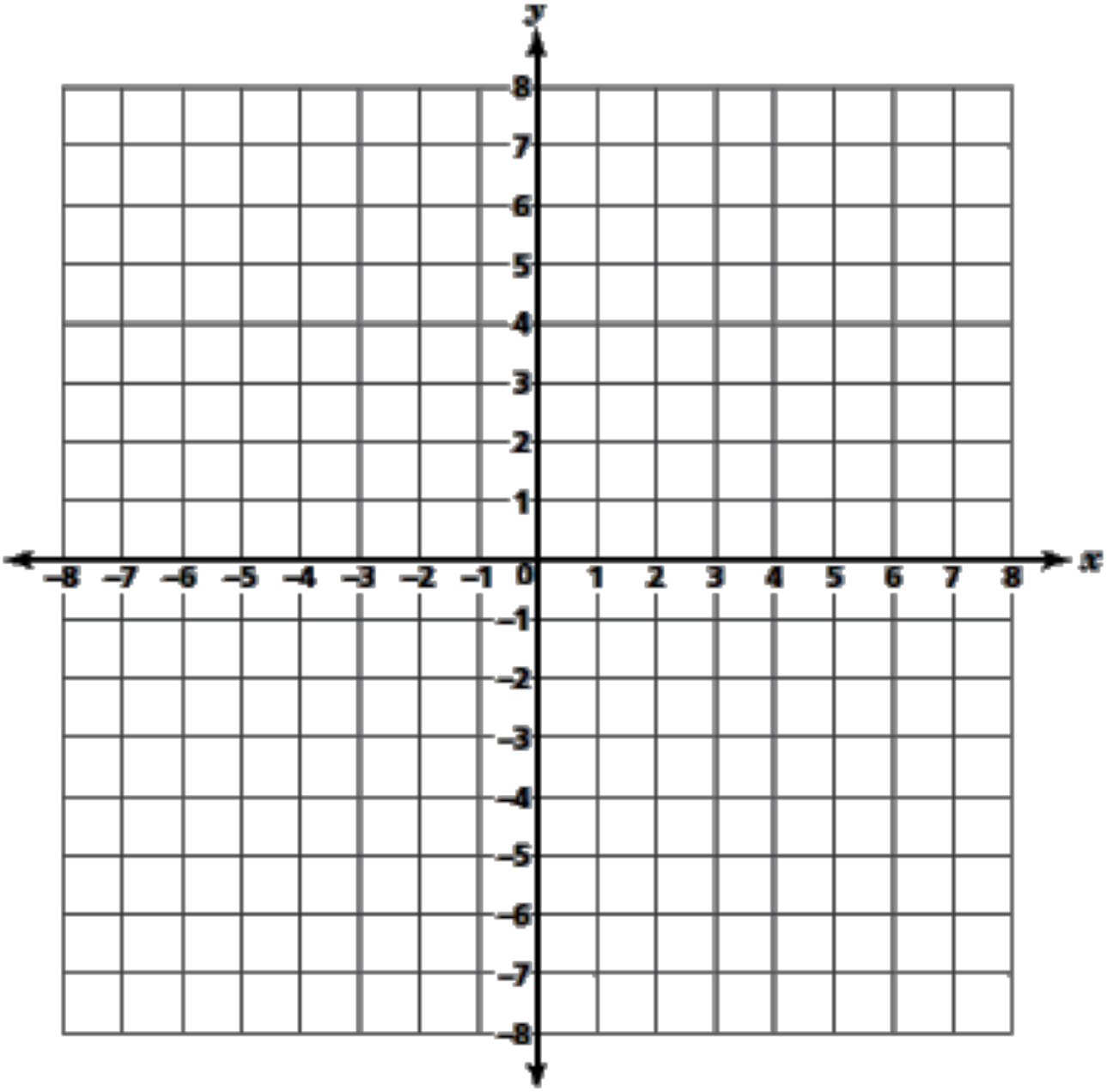
| ***x*** | ***y*** |
|---|---|
| **-3** | |
| **0** | |
| **2** | |

b) $y = -x - 2$

| ***x*** | ***y*** |
|---|---|
| **-3** | |
| **0** | |
| **4** | |

c) $y = \frac{1}{3}x + 4$

| ***x*** | ***y*** |
|---|---|
| | |
| | |
| | |
| | |


y
x
8
7
6
5
4
3
2
1
0
−1
−2
−3
−4
−5
−6
−7
−8
−8 −7 −6 −5 −4 −3 −2 −1
1 2 3 4 5 6 7 8