Math 8 Review

No calculator #1-41

Solve.

1) $5(9-w)=10$

2) $-4y-(5y+6)=-7y+3$

3) $-\frac{3}{4}x-2=-8$

4) $\frac{5}{3}(9-w)=-10$

Solve for the indicated variable.

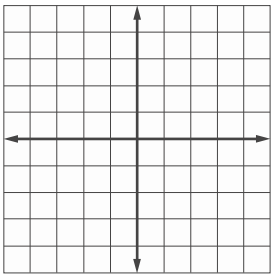
5) $C=2\pi r;\ r$

6) $S=B+\frac{1}{2}Pl;\ l$

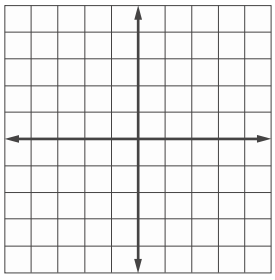
7) Rewrite $3x+4y=15+6y$ so that y is a function of x.

Use a table of values to graph the equations.

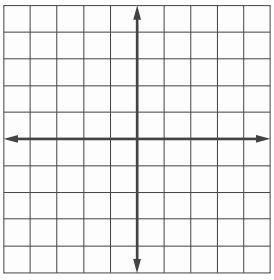
8) $2x+y-11=0$



9) $y=4$



10) $y=-(5-x)$



Write the equation of the line in **slope-intercept form** with the given information.

11) $m = 2; b = 1$

12) $m = -4; b = 3$

13) $m = 0; b = 4$

14) m =2; passing through (2, 6)

15) m = -5; passing through (3, -9)

16) m = ½ ; passing through (4, -2)

17) m =-4; passing through (1, 8)

18) m =0; passing through (4, 3)

19) m =undefined; passing through (5, 2)

20) passing through (-3, 2) and (4, -1)

21) passing through (6, 2) and (8, -4)

22) passing through (-2, 5) and (2, 4)

23) passing through (9, -1) and (1, -9)

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

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

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

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

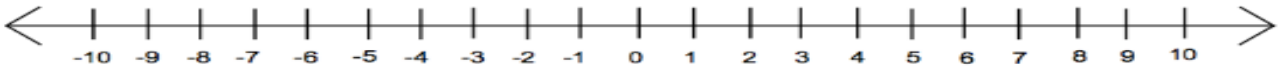
d) $\frac{1}{2}$

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

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

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

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



Solve.

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

30) $\frac{x}{x-4} = \frac{3}{10}$

Solve and graph on the number line.

31) $-21 > 7(r - 10)$

32) $8 < \frac{n}{-6} + 9$

33) $-49 + 7m \leq -105$

34) $11 \geq -\frac{n}{3} + 12$

35) $2x + 7 \geq 13$ *or* $5x - 4 < 6$

36) $x - 7 < 3x - 5 < x + 11$

Evaluate **#37-42** when x = -5, y = ½ and z = 0.4

37) $-3x + 4$

38) $4z - 3x + xy$

39) $x - y^2$

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

41) $z^2 - y - x$

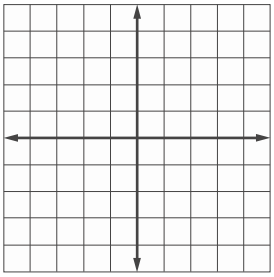
Find the slope of the line passing between the two points.

42) (3, -4) and (3, -2)

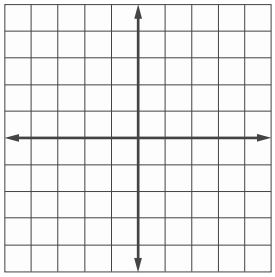
43) $(\frac{3}{2}, -3)$ *and* $(\frac{1}{2}, -7)$

44) Graph the following lines.

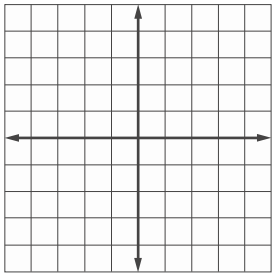
a) 2x +5y = 15



b) 3x –y = 4

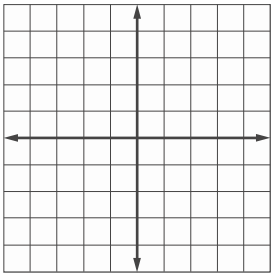


c) x + ¾y = -6

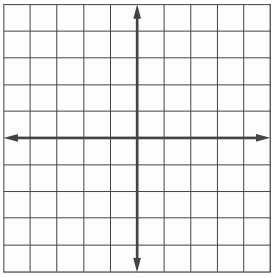


45) Solve each system by graphing.

a) $\frac{1}{2}x + 1 = y\,; y = -\frac{1}{2}x - 3$



b) $-\frac{5}{2}x + 2 = y\,; y = \frac{1}{2}x - 4$



46) Solve each system by Substitution.

a) $y = 2x + 13; 2x + 4y = -8$

b) $y = -4x\,; 6x + 4y = 20$

47) Solve each system by Elimination.

a) $x + 3y = 2; -2x - 2y = -12$

b) $x - y = 4\,; 2x + \frac{1}{2}y = 4$

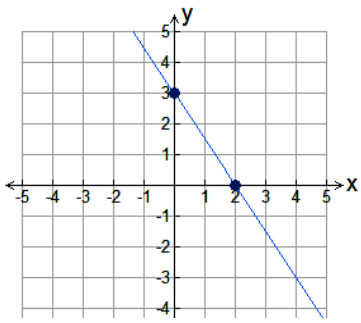
48) Write the equation of the line satisfying the following:

a) through (-2, -4), parallel to $y = -\frac{4}{3}x - 3$

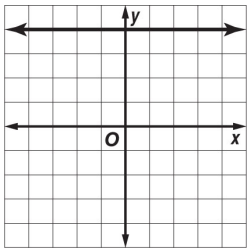
b) through (-2, 1), parallel to y = x + 4

49) Write the equation of the lines shown.

a)



b)



Simplify.

50) $8(1 - 9a) - 4(3a - 8)$

51) $10(k^2 + 3) + 4(-7 - 5k^2)$

52) $(4x^3 + 13 - 14x^2) - (12x^3 + 10 + 6x^2)$

53) $(-3m^4 + 5m^2 - 8m) + (2m^2 - 4m^4 + 5m)$

Find each product:

54) $(3v + 5)(v + 7)$

55) $(3r - 6)(-6r + 8)$

56) $(-5x - 8)(7x + 6)$

57) $(x^2 - 4)(x^2 + 4)$

58) $(-8p^2 - 4p + 7)(3p^2 + p - 1)$

Solve for the given variable.

59) $S = \frac{v}{r}$; for r

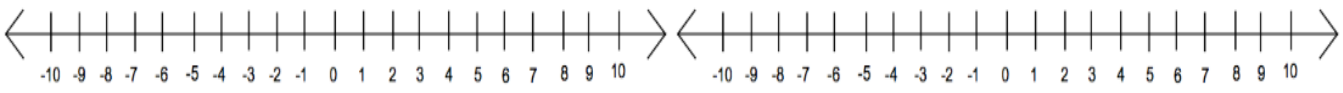
60) P= 2 (L + W); for W

61) A= P + Prt; for

Solve each inequality and graph on the number lines below.

62) $-5(5n + 1) - 9n < -6(3n + 3)$

63) $11b + 7(9b + 2) \leq -8(1 - 12b)$



Simplify.

64) $(3r^3)(2r^2)$ 65) $\frac{2x^4}{2x}$ 66) $(-2x^3)^0$ 67) $(3x^3y^2)(-4y^6)$

68) $4x^5 \cdot 3x^3$ 69) $4^4 \cdot 4^2 \cdot 4^3$ 70) $\frac{-8x^3}{2x^2}$ 71) $(\frac{b \cdot -a^3b^3}{a^2b^4})$

Simplify each radical. Leave exact answers.

72) $\sqrt{75}$ 73) $\sqrt{180}$ 74) $\sqrt{320}$ 75) $\frac{\sqrt{15}}{\sqrt{125}}$ 76) $\frac{4\sqrt{10}}{3\sqrt{18}}$

Factor the GCF out of the expressions.

77) $-100x^4y^6 + 20x^3y^3 + 70x^2y^3$ 78) $80 - 40u^5 + 24uv^3$

79) $27x^5y^2 - 12x^5 + 15y^4$ 80) $-8x^2 + 4x - 16$

Factor each trinomial completely.

81) $x^2 - 2x - 80$ 82) $7n^2 - 24n + 20$ 83) $5x^2 - 55x + 50$

84) $6x^2 - 7x - 3$

85) $12m^2 + 28m - 5$

86) $-2n^2 - n + 21$

Solve by factoring and using the zero product property.

87) $n^2 - 5n - 6 = 0$

88) $4x^2 - 9 = 0$

89) $7n^2 + 20 = 24n$

Solve each system using your method of choice.

90) y = 5x +13
2y – 24 = 10x

91) -24x + 9y = 12
8x – 3y = -4

92) 17x – 3y = 5
y – 1 = 3x

93) What number is 21% of 450?

94) 21 out of 25 is what percent?

95) Find 45% of 360.

96) 441 is 63% of what number?

97) 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?

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

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

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

Solve each proportion.

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

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

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

104) 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

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

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

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

108) 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.

109) 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.

110) 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?

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

112) 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

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

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

114) Simplify each expression.

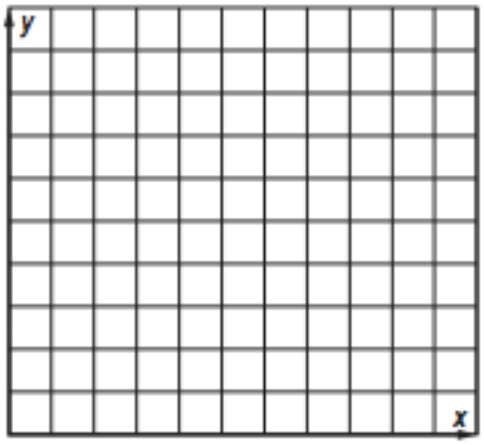
a) w + 14w - 6w b) -3(5 – 6h) c) $12b^2 + 9b^2$ d) $3a^2 + 6a^2 + 2b^2$ e) 4(6p + 2q - 2p)

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

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

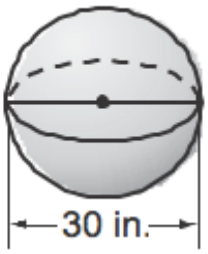
117) Construct a scatterplot for the data. Draw a line of best fit. Write the equation for your line of best fit.

Age (years)	Hours of TV Watched per Week
5	5
5	15
10	20
15	15
20	20
25	30
30	20
30	25
35	30
40	20

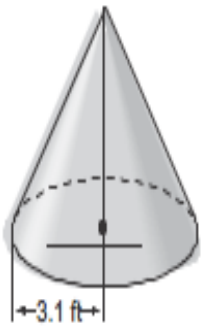


118) Find the volume of each solid. Use $\pi = 3.14$. If necessary, round to the nearest hundredth.

a) $V = \frac{4}{3}\pi r^3$



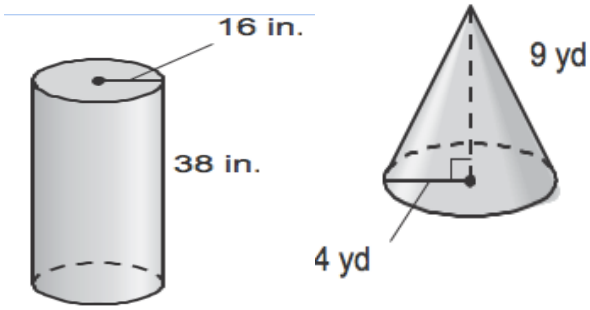
b) $V = \frac{1}{3}\pi r^3 h$; h = 6.9 ft



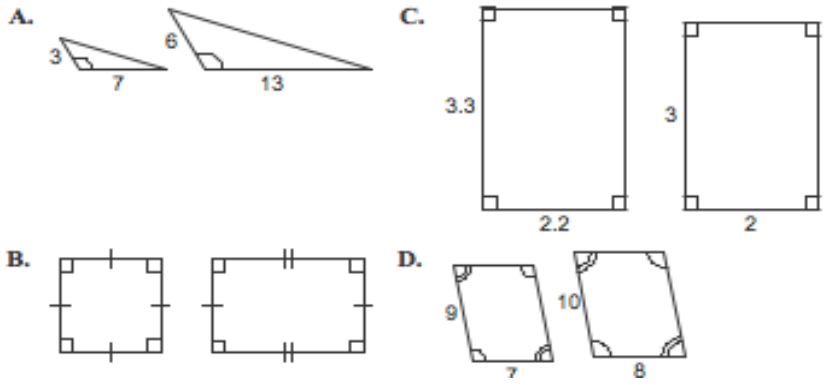
119) A cylinder has a volume of 26 cubic inches. If all the dimensions are multiplied by 3.2, what would be the volume of the new cylinder? Round to the nearest hundredth.

120) Find the volume of the figures below. Use $V = \frac{1}{3}\pi r^2 h; V = \pi r^2 h;\ \pi = 3.14$

a) b)



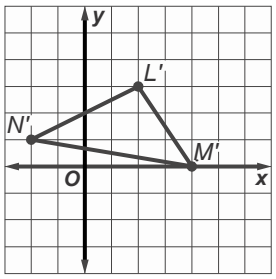
121) Which pair of polygons is similar?



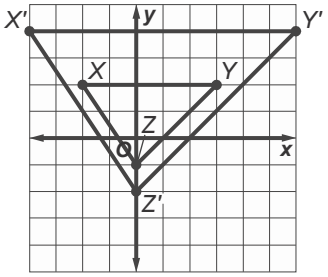
122) Dominic is 72 inches tall and casts a 60 inch shadow. His son, who is standing next to him, casts a 50 inch shadow. How tall is his son?

123) The length of a rectangle is 14 centimeters and the width is 5 centimeters. A similar rectangle has a width of 2.5 centimeters. What is the length of the second rectangle?

124) The triangle $N'L'M'$ shown was reflected over the x-axis. Find the original coordinates of triangle NLM.

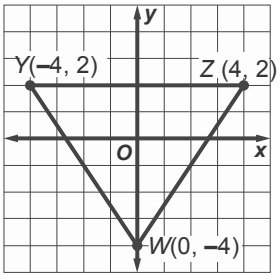


125) In the figure below, $\triangle X'Y'Z'$ is a dilation of $\triangle XYZ$. Find the scale factor of the dilation, and classify it as an enlargement or a reduction.

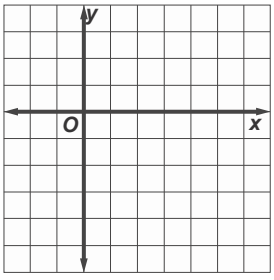


126) Triangle PQR is rotated 90° clockwise about the origin. The vertices of the triangle are $P(3, 1)$, $Q(1, 4)$, and $R(2, -5)$. Find the coordinates of P', Q', and R'.

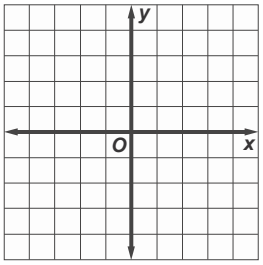
For exercises 127-129, refer to the graph of triangle YZW below.



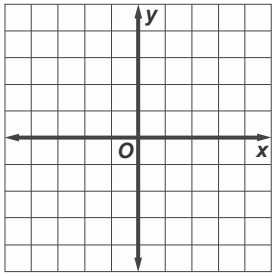
127) Graph and label the image of $\triangle YZW$ after a translation 2 units right and 1 unit down.



128) Graph and label the image of $\triangle YZW$ after a reflection over the y-axis.

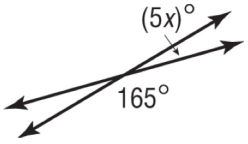


129) Graph and label the image of $\triangle YZW$ after a dilation by a scale factor of $\frac{1}{2}$.

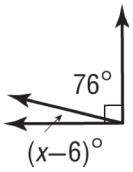


130) Find the value of x in each figure.

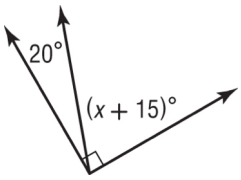
a)



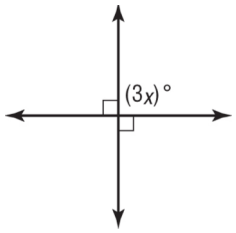
b)



c)

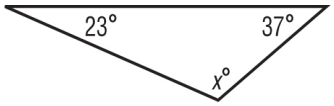


d)

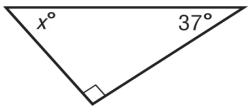


131) Find the missing angle measure in each triangle. Then classify the triangle as *acute, right,* or *obtuse.*

a)

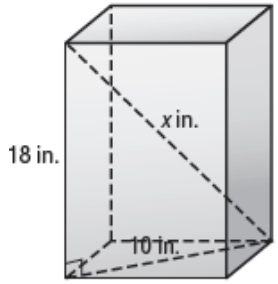


b)



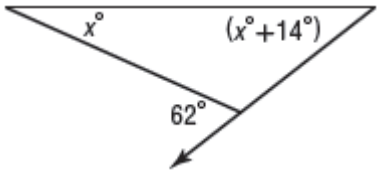
132) A model of a building is made using a scale of 1 inch = 25 feet. What is the height of the actual building if the height of the model is 12.5 inches?

133) Kenneth wants to wrap a collapsible fishing rod in the box shown at the right. Find the length of the diagonal of the box. Round to the nearest tenth if necessary.

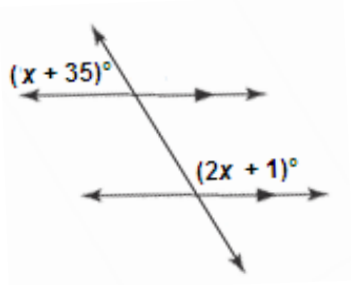


134) Find the value of x in each figure.

a)



b)



135) Find the distance between each pair of points with the given coordinates. Give exact answers.

a) (-2, 4) and (-5, -2)

b) (-4, 6) and (5, 0)

136) A triangle has side lengths of 10 inches, 24 inches, and 26 inches. Is the triangle a right triangle? Explain.

137) Find $f(-3)$, $f(2)$ and f(-8)when $f(x) = \frac{1}{3}x$.

138) Which table represents a linear function?

F.

x	5	2	–1	–4
y	6	7	10	12

H.

x	4	6	9	15
y	3	4	5	6

G.

x	–2	0	2	4
y	0	1	2	3

I.

x	7	4	1	–2
y	–1	–3	–6	–10

139) Which of the following represents a nonlinear function?

F. $y = 8x + 10$ **G.** $y = x$ **H.** $y = -9x$ **I.** $y = 4x^2$

140) 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?

141) State the domain and range for the following relation: {(4, –1), (3, 2), (0, –3), (1, 4)}

142) Complete the function table for $f(x) = 3x + 2$.

x	$f(x)$
–2	
–1	
0	
1	

Simplify.

143) $-8(9 + 3x) + 8(20 + 7x)$

144) $-19(20m - 14) + 19(m - 8)$

145) $7(1 - 13a) + 17(3a - 8)$

146) $10(k + 3) + 14(10 - 5k)$

Solve.

147) $2x = 21 - x$

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

149) $5y = 6(3 - y) - (4y - 7)$

150) $-4(-5n + 1) = 116$

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

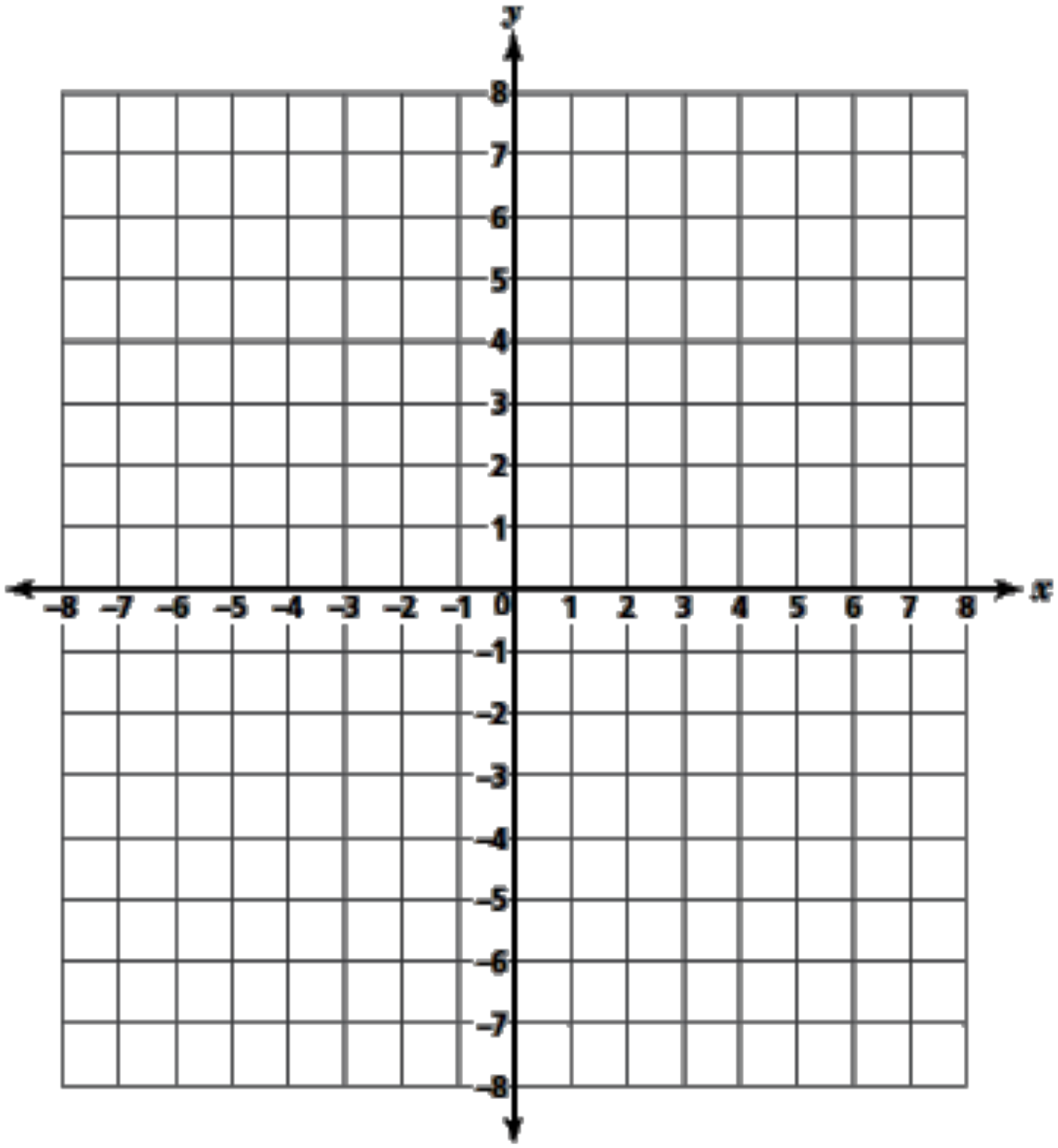
152) $8 + 8k = -2(-2k + 5) + 7k$

153) Graph the lines in the coordinate grid below Be sure to label your lines with the appropriate equations.

a) $y = 3x + 1$ b) $y = -x - 2$ c) $y = \frac{1}{3}x + 4$

d) x = 4 e) x + y = 0 f) 2x – 3y = -9

154) Solve. Daniel's school is selling tickets to a spring musical. On the first day of ticket sales, the school sold one senior citizen ticket and twelve child tickets for a total of $106. The school took in $224 on the second day by selling 12 senior citizen tickets and 13 child tickets. Find the price of a senior citizen ticket and the price of a child ticket.


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