CTJan27 Online Name_____ ID: 1

Year 8 & 9 Revision

Date_____

1) Tabel of Contents

Solving Linear Equations

2) $-1 = \frac{-3 + x}{15}$

3) $\frac{x + 4}{3} = 2$

4) $170 = -7a - 3(5a + 2)$

5) $-102 = 6(1 - 3p)$

6) $2(a + 5) = 3(1 + 6a) + 7$

7) $6(2n + 6) = -2(n - 4)$

8) $-(n + 6) - 2 = 3(n - 4)$

9) $-8(1 - 5p) = 8(6 + 6p)$

Mixture Word Problems

10) Darryl wants to make a 43% alcohol solution. He has already poured 2 qt. of a 75% alcohol solution into a beaker. How many qt. of a 35% alcohol solution must he add to this to create the desired mixture?

11) 4 kg of mixed nuts was made by combining 3 kg of walnuts which cost \$7/kg with 1 kg of peanuts which cost \$3/kg. Find the cost per kg of the mixture.

12) 6 lbs. of Indonesian cinnamon were mixed with 9 lbs. of Thai cinnamon which costs \$17/lbs. to make Brand M Cinnamon which costs \$15/lbs.. What is the price per lbs. of Indonesian cinnamon?

13) A metal alloy weighing 2 mg and containing 55% nickel is melted and mixed with 4 mg of a different alloy which contains 10% nickel. What percent of the resulting alloy is nickel?

14) Brand X sells 24 kg bags of mixed nuts that contain 52% peanuts. To make their product they add peanuts to Brand A's mixed nuts which contain 28% peanuts. How much of each do they combine?

15) How many oz. of a metal containing 40% copper must be combined with 4 oz. of a metal containing 84% copper to form an alloy containing 51% copper?

16) A metallurgist needs to make 14 lb. of an alloy containing 50% silver. He is going to melt and combine one metal that is 55% silver with another metal that is 20% silver. How much of each should he use?

17) Brand X sells 18 kg bags of mixed nuts that contain 40% peanuts. To make their product they combine Brand A mixed nuts which contain 60% peanuts and Brand B mixed nuts which contain 30% peanuts. How much of each do they need to use?

18) Stefan left the mall and drove toward the desert at an average speed of 24 mph. Kathryn left three hours later and drove in the same direction but with an average speed of 60 mph. Find the number of hours Stefan drove before Kathryn caught up.

19) Julia traveled to the recycling plant and back. On the trip there she traveled 65 km/h and on the return trip she went 78 km/h. How long did the trip there take if the return trip took five hours?

20) Imani made a trip to the recycling plant and back. On the trip there she drove 80 km/h and on the return trip she went 64 km/h. How long did the trip there take if the return trip took five hours?

21) An Air Force plane made a trip to Jakarta and back. The trip there took three hours and the trip back took two hours. It averaged 345 km/h on the return trip. Find the average speed of the trip there.

22) Shayna left home and traveled toward the lake. Eduardo left three hours later traveling at 60 km/h in an effort to catch up to Shayna. After traveling for two hours Eduardo finally caught up. Find Shayna's average speed.

23) Jasmine left the hospital traveling toward the desert one hour before Daniel. Daniel traveled in the opposite direction going 15 mph faster than Jasmine for one hour after which time they were 90 mi. apart. What was Jasmine's speed?

24) A container ship left the Dania Pier and traveled east at an average speed of 25 mph. An aircraft carrier left one hour later and traveled in the same direction but with an average speed of 30 mph. Find the number of hours the container ship traveled before the aircraft carrier caught up.

25) An Air Force plane left the airport and flew west at an average speed of 230 km/h. A cargo plane left three hours later and flew in the opposite direction with an average speed of 320 km/h. How long does the cargo plane need to fly before the planes are 2340 km apart?

Solve each question. Round your answer to the nearest hundredth.

26) Shawna can harvest a field in 14 hours. One day her friend Paul helped her and it only took 6.46 hours. Find how long it would take Paul to do it alone.

27) Working alone, Perry can sweep a porch in 11 minutes. Imani can sweep the same porch in 13 minutes. Find how long it would take them if they worked together.

28) Sumalee can sweep a porch in 14 minutes. Jack can sweep the same porch in 8 minutes. Find how long it would take them if they worked together.

29) Working together, Nicole and Trevon can harvest a field in 4.74 hours. Had he done it alone it would have taken Trevon nine hours. How long would it take Nicole to do it alone?

30) Working alone, Alberto can wax a floor in 15 minutes. One day his friend Mei helped him and it only took 6 minutes. Find how long it would take Mei to do it alone.

31) It takes Bill 12 minutes to weed a garden. Julio can weed the same garden in 11 minutes. How long would it take them if they worked together?

32) Working together, Darryl and Kim can mop a warehouse in 4.24 hours. Had she done it alone it would have taken Kim eight hours. How long would it take Darryl to do it alone?

33) Working together, Jenny and Jaidee can harvest a field in 5.83 hours. Had she done it alone it would have taken Jaidee 10 hours. Find how long it would take Jenny to do it alone.

Solve each equation for the indicated variable.

34) $xm = n + p$, for x

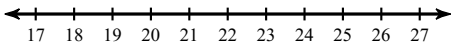
35) $am = p + n$, for a

36) $gc = \dfrac{a+b}{a}$, for a

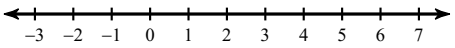
37) $gx = \dfrac{x+y}{c}$, for x

Inequalities

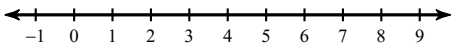
38) $1 > \dfrac{m-9}{10}$



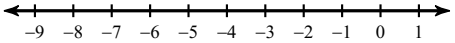
39) $\dfrac{p+9}{4} < 3$



40) $-10 + \dfrac{n}{2} \le -8$

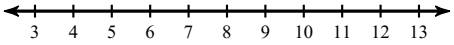


41) $-84 > 6(x-7)$

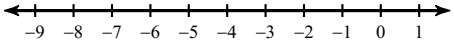


Solve each inequality and graph its solution.

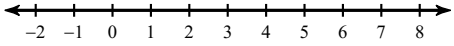
42) $4(3r + 2) + 8 > 100$



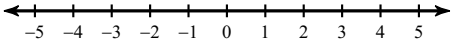
43) $3(-6k + 7) - 6k \leq 189$



44) $-10 + b \geq 2(7b - 5)$

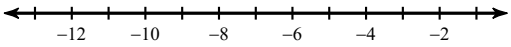


45) $-8n + 5 > 6(6n + 7) - 7n$

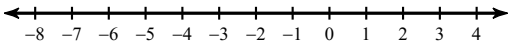


Solve each compound inequality and graph its solution.

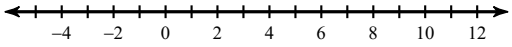
46) $6x - 2 \leq -14$ and $-7 + 2x \geq -19$



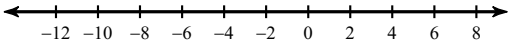
47) $4 + 2k \leq -2$ and $1 - 8k \leq 49$



48) $5a - 10 \geq -2 + 4a$ or $3 - 9a \geq 10a + 3$



49) $v + 2 \geq 2v + 10$ or $-9v + 8 \leq -4v - 7$



Percentages

50) 2% of what is 110?

51) 176% of 64 is what?

52) What is 92% of 51.2?

53) What percent of 62 is 54?

54) 11% of what is 143?

55) 34% of what is 7?

56) What is 89% of 8?

57) What percent of 106 is 84?

Find each percent change. State if it is an increase or a decrease.

58) From 49 to 84.9

59) From 36 to 39

60) From 29 to 21

61) From 70 to 51

62) From 97 to 79

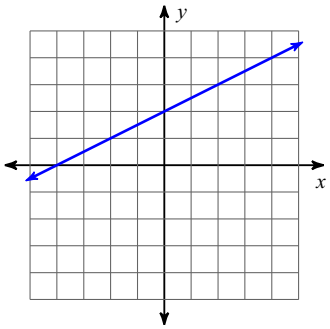
63) From 56 to 74

64) From 58 to 20

65) From 98 to 71

Linear Graphs

66)



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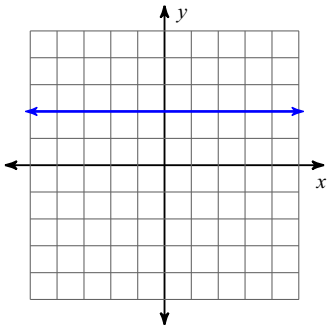

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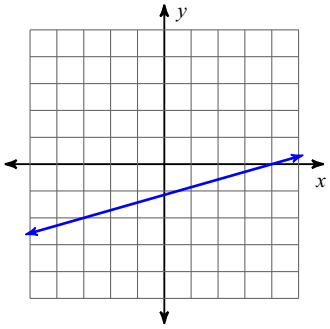

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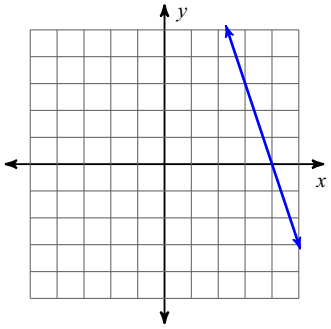


Find the slope of the line through each pair of points.

70) $(-1, 11), (20, -9)$

71) $(-6, -17), (13, -15)$

72) $(9, 17), (20, -2)$

73) $(18, -15), (-17, -6)$

Find the slope of each line.

74) $y = \frac{1}{4}x - 4$

75) $y = \frac{2}{5}x - 5$

76) $y = \frac{8}{3}x - 5$

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

Find the slope of a line parallel to each given line.

78) $y = 3x - 2$

79) $y = -2x - 5$

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

81) $y = -\frac{3}{4}x - 1$

Find the slope of a line perpendicular to each given line.

82) $y = -\frac{5}{4}x$

83) $y = -\frac{5}{4}x + 4$

84) $y = -\frac{4}{3}x + 5$

85) $y = -5x - 1$

Find the value of x or y so that the line through the points has the given slope.

86) $(4, y)$ and $(-3, 3)$; slope: $-\frac{2}{7}$

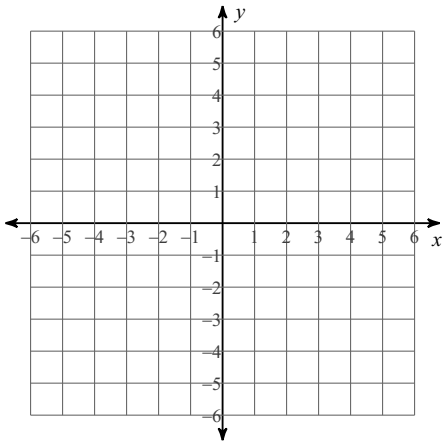
87) $(-9, -4)$ and $(x, 3)$; slope: $\frac{7}{10}$

88) $(0, 1)$ and $(6, y)$; slope: $-\frac{4}{3}$

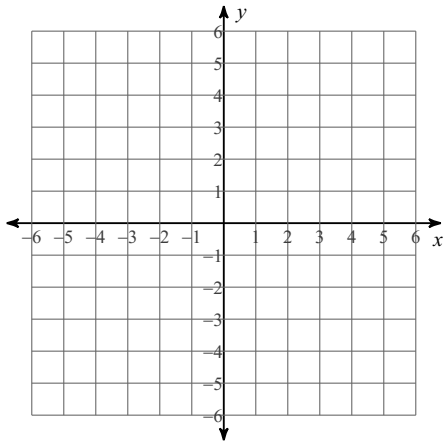
89) $(-9, 4)$ and $(-6, y)$; slope: -4

Sketch the graph of each line.

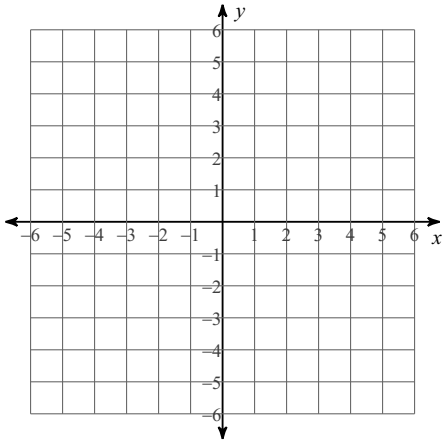
90) $y = -5x + 5$



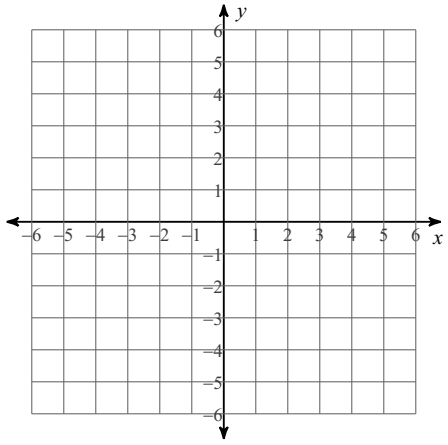
91) $y = 2x - 3$



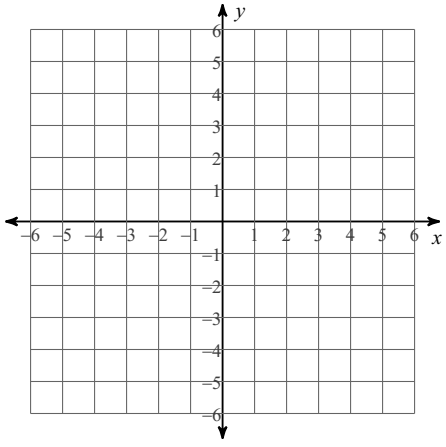
92) $y = -\frac{5}{2}x - 5$



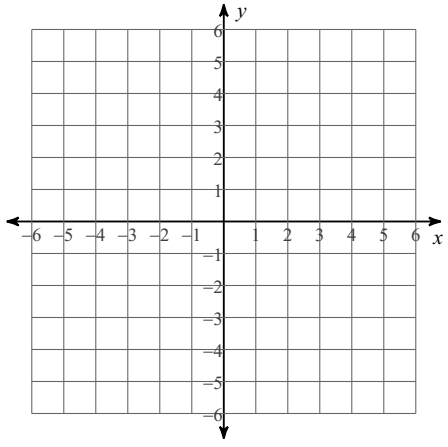
93) $y = \frac{8}{3}x - 3$



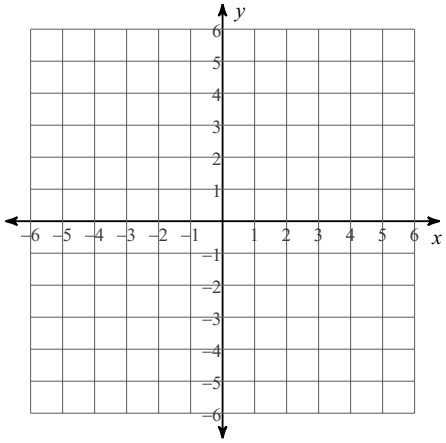
94) $x + y = 2$



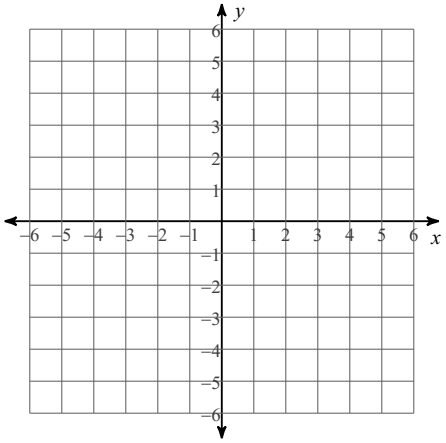
95) $3x + y = 3$



96) $4x - y = -5$

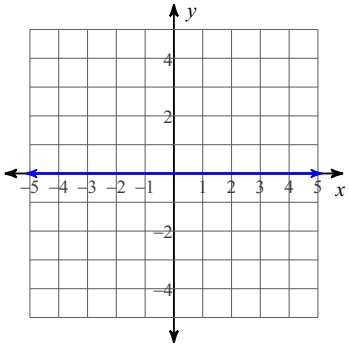


97) $x - y = 3$



Write the slope-intercept form of the equation of each line.

98)



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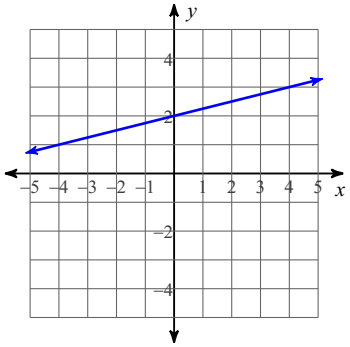
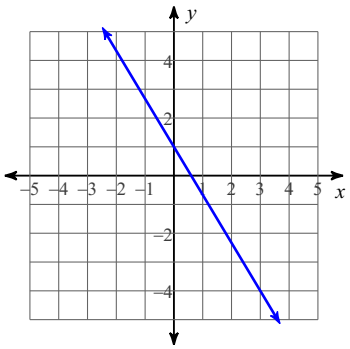


100)



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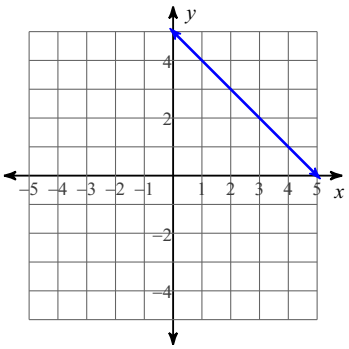


Write the slope-intercept form of the equation of each line given the slope and y-intercept.

102) Slope $= -\frac{3}{4}$, y-intercept $= -2$

103) Slope $= 3$, y-intercept $= 3$

104) Slope $= -\frac{4}{5}$, y-intercept $= -4$

105) Slope $= \frac{1}{3}$, y-intercept $= -1$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

106) through: $(4, 3)$, slope $= \frac{3}{4}$

107) through: $(1, -2)$, slope $= -\frac{2}{5}$

108) through: $(-2, 3)$, slope $= -2$

109) through: $(-3, -3)$, slope $= \frac{4}{3}$

Write the slope-intercept form of the equation of the line through the given points.

110) through: $(4, -3)$ and $(-1, -5)$

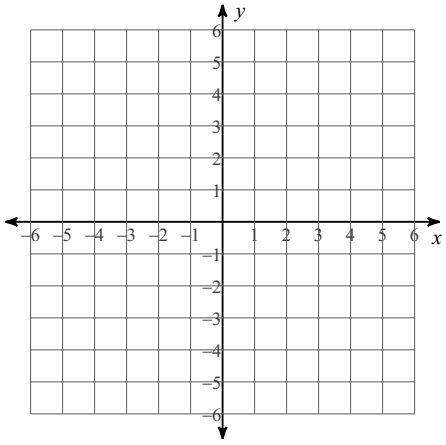
111) through: $(3, 1)$ and $(5, 2)$

112) through: $(4, 4)$ and $(1, -1)$

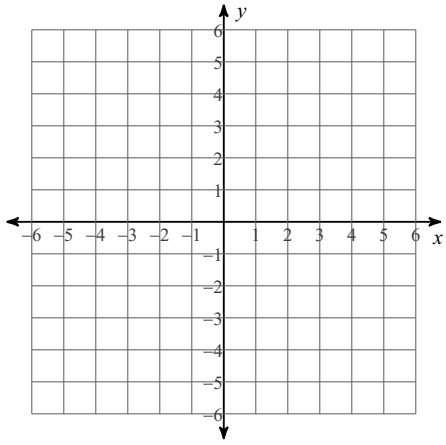
113) through: $(-3, 2)$ and $(2, 3)$

Sketch the graph of each linear inequality.

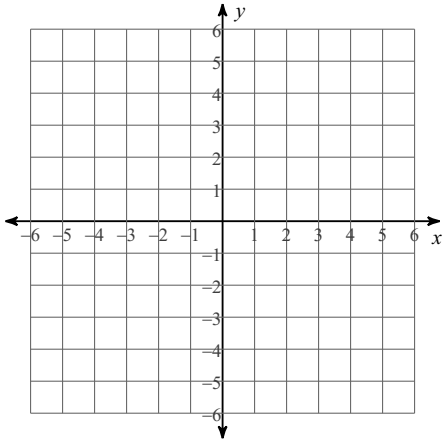
114) $y > -2x + 1$



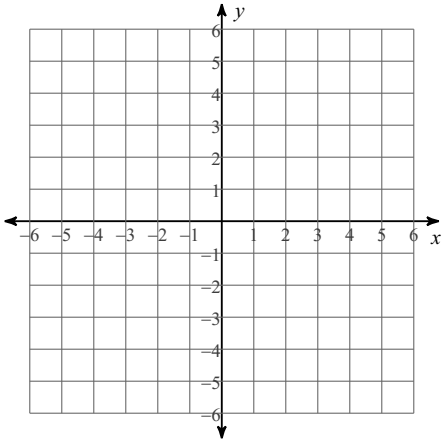
115) $y > 2x + 1$



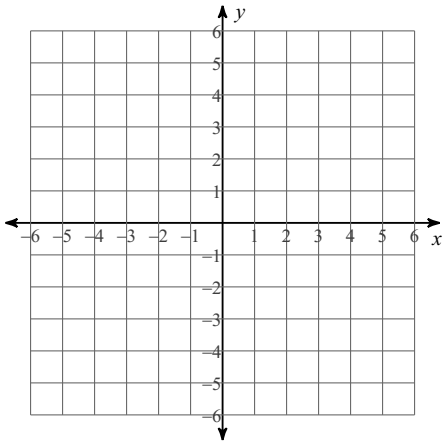
116) $y \leq -x - 2$



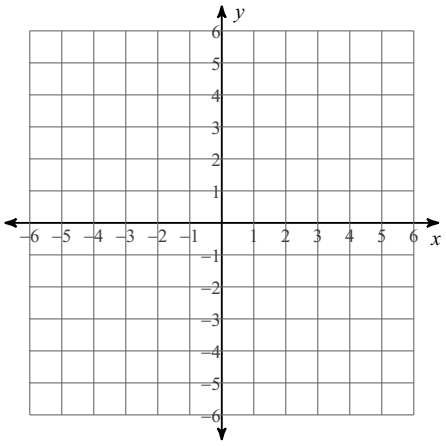
117) $y \leq -x - 3$



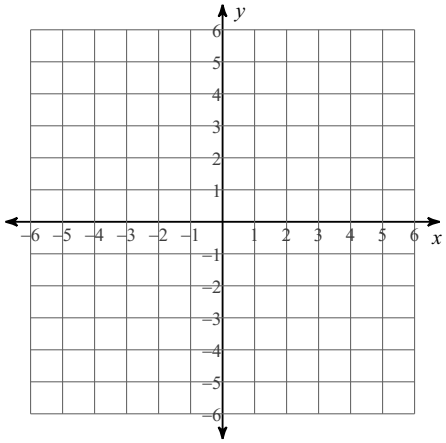
118) $y \geq 4x - 3$



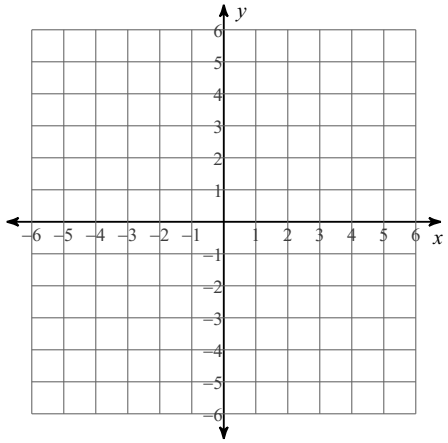
119) $y < 5x$



120) $y \le \frac{5}{4}x - 1$



121) $y \le \frac{8}{3}x - 5$



Exponents

122) $2b^0 \cdot ac^{-3}$

123) $2kh^3j^4 \cdot 3kh^{-4}j^{-2}$

124) $4m^0p^2 \cdot 3q^{-3}$

125) $3a \cdot 2a^3b^3c^{-1}$

Simplify. Your answer should contain only positive exponents.

126) $\left(3x^4y^{-4}\right)^{-3}$

127) $(4ab)^{-4}$

128) $(3y)^{-3}$

129) $\left(2yx^4\right)^3$

130) $\frac{3x^3y^4}{x^3}$

131) $\frac{yx^{-4}}{3x^4y^3}$

132) $\frac{3x^0}{4x^2y^3}$

133) $\frac{3u^0v^3}{4u^0v^4}$

134) $\frac{\left(2x^0y^2\right)^{-1}}{2x^4y^{-4} \cdot x^4y^{-4}}$

135) $\frac{\left(x^0y^0\right)^0}{2x^4y^{-1} \cdot yx^4}$

136) $\left(\frac{2x^{-4}y^{-2}}{x^{-4}\cdot 2xy^{-1}\cdot 2y^{-1}}\right)^{-1}$

137) $\frac{m^{0}}{\left(m^{-4}n^{2}\right)^{-4}\cdot 2m^{0}}$

138) $\left(\frac{2^{2}\cdot 2^{-4}}{2^{4}}\right)^{-4}$

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

140) $\frac{2^{-3}}{2^{4}\cdot 2^{4}}$

141) $\left(\frac{2\cdot 2^{3}}{2^{-3}}\right)^{-3}$

Write each number in scientific notation.

142) 0.012

143) 790000

144) 522

145) 0.0052

146) 180

147) 49.7

148) 0.000078

149) 400000

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1) Tabel of Contents

Solving Linear Equations

2) $-1 = \frac{-3 + x}{15}$

$\{-12\}$

3) $\frac{x + 4}{3} = 2$

$\{2\}$

4) $170 = -7a - 3(5a + 2)$

$\{-8\}$

5) $-102 = 6(1 - 3p)$

$\{6\}$

6) $2(a + 5) = 3(1 + 6a) + 7$

$\{0\}$

7) $6(2n + 6) = -2(n - 4)$

$\{-2\}$

8) $-(n + 6) - 2 = 3(n - 4)$

$\{1\}$

9) $-8(1 - 5p) = 8(6 + 6p)$

$\{-7\}$

Mixture Word Problems

10) Darryl wants to make a 43% alcohol solution. He has already poured 2 qt. of a 75% alcohol solution into a beaker. How many qt. of a 35% alcohol solution must he add to this to create the desired mixture?

8 qt.

11) 4 kg of mixed nuts was made by combining 3 kg of walnuts which cost \$7/kg with 1 kg of peanuts which cost \$3/kg. Find the cost per kg of the mixture.

\$6/kg

12) 6 lbs. of Indonesian cinnamon were mixed with 9 lbs. of Thai cinnamon which costs \$17/lbs. to make Brand M Cinnamon which costs \$15/lbs.. What is the price per lbs. of Indonesian cinnamon?

\$12/lbs.

13) A metal alloy weighing 2 mg and containing 55% nickel is melted and mixed with 4 mg of a different alloy which contains 10% nickel. What percent of the resulting alloy is nickel?

25%

14) Brand X sells 24 kg bags of mixed nuts that contain 52% peanuts. To make their product they add peanuts to Brand A's mixed nuts which contain 28% peanuts. How much of each do they combine?

16 kg of Brand A, 8 kg of peanuts

15) How many oz. of a metal containing 40% copper must be combined with 4 oz. of a metal containing 84% copper to form an alloy containing 51% copper?

12 oz.

16) A metallurgist needs to make 14 lb. of an alloy containing 50% silver. He is going to melt and combine one metal that is 55% silver with another metal that is 20% silver. How much of each should he use?

12 lb. of 55% silver, 2 lb. of 20% silver

17) Brand X sells 18 kg bags of mixed nuts that contain 40% peanuts. To make their product they combine Brand A mixed nuts which contain 60% peanuts and Brand B mixed nuts which contain 30% peanuts. How much of each do they need to use?

6 kg of Brand A, 12 kg of Brand B

18) Stefan left the mall and drove toward the desert at an average speed of 24 mph. Kathryn left three hours later and drove in the same direction but with an average speed of 60 mph. Find the number of hours Stefan drove before Kathryn caught up.

5 hours

19) Julia traveled to the recycling plant and back. On the trip there she traveled 65 km/h and on the return trip she went 78 km/h. How long did the trip there take if the return trip took five hours?

6 hours

20) Imani made a trip to the recycling plant and back. On the trip there she drove 80 km/h and on the return trip she went 64 km/h. How long did the trip there take if the return trip took five hours?

4 hours

21) An Air Force plane made a trip to Jakarta and back. The trip there took three hours and the trip back took two hours. It averaged 345 km/h on the return trip. Find the average speed of the trip there.

230 km/h

22) Shayna left home and traveled toward the lake. Eduardo left three hours later traveling at 60 km/h in an effort to catch up to Shayna. After traveling for two hours Eduardo finally caught up. Find Shayna's average speed.

24 km/h

23) Jasmine left the hospital traveling toward the desert one hour before Daniel. Daniel traveled in the opposite direction going 15 mph faster than Jasmine for one hour after which time they were 90 mi. apart. What was Jasmine's speed?

25 mph

24) A container ship left the Dania Pier and traveled east at an average speed of 25 mph. An aircraft carrier left one hour later and traveled in the same direction but with an average speed of 30 mph. Find the number of hours the container ship traveled before the aircraft carrier caught up.

6 hours

25) An Air Force plane left the airport and flew west at an average speed of 230 km/h. A cargo plane left three hours later and flew in the opposite direction with an average speed of 320 km/h. How long does the cargo plane need to fly before the planes are 2340 km apart?

3 hours

Solve each question. Round your answer to the nearest hundredth.

26) Shawna can harvest a field in 14 hours. One day her friend Paul helped her and it only took 6.46 hours. Find how long it would take Paul to do it alone.

11.99 hours

27) Working alone, Perry can sweep a porch in 11 minutes. Imani can sweep the same porch in 13 minutes. Find how long it would take them if they worked together.

5.96 minutes

28) Sumalee can sweep a porch in 14 minutes. Jack can sweep the same porch in 8 minutes. Find how long it would take them if they worked together.

5.09 minutes

29) Working together, Nicole and Trevon can harvest a field in 4.74 hours. Had he done it alone it would have taken Trevon nine hours. How long would it take Nicole to do it alone?

10.01 hours

30) Working alone, Alberto can wax a floor in 15 minutes. One day his friend Mei helped him and it only took 6 minutes. Find how long it would take Mei to do it alone.

10 minutes

31) It takes Bill 12 minutes to weed a garden. Julio can weed the same garden in 11 minutes. How long would it take them if they worked together?

5.74 minutes

32) Working together, Darryl and Kim can mop a warehouse in 4.24 hours. Had she done it alone it would have taken Kim eight hours. How long would it take Darryl to do it alone?

9.02 hours

33) Working together, Jenny and Jaidee can harvest a field in 5.83 hours. Had she done it alone it would have taken Jaidee 10 hours. Find how long it would take Jenny to do it alone.

13.98 hours

Solve each equation for the indicated variable.

34) $xm = n + p$, for x $x = \frac{n+p}{m}$

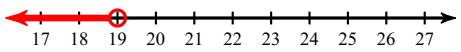
35) $am = p + n$, for a $a = \frac{p+n}{m}$

36) $gc = \frac{a+b}{a}$, for a $a = \frac{b}{gc-1}$

37) $gx = \frac{x+y}{c}$, for x $x = \frac{y}{gc-1}$

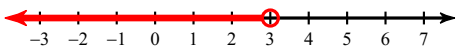
Inequalities

38) $1 > \frac{m-9}{10}$



$m < 19$

39) $\frac{p+9}{4} < 3$

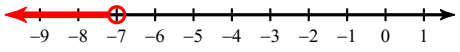


$p < 3$

40) $-10 + \frac{n}{2} \le -8$

$n \le 4$

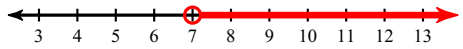
41) $-84 > 6(x-7)$



$x < -7$

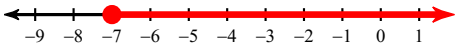
Solve each inequality and graph its solution.

42) $4(3r+2)+8>100$



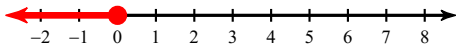
$r>7$

43) $3(-6k+7)-6k\le 189$



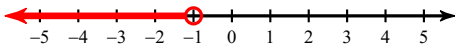
$k\ge -7$

44) $-10+b\ge 2(7b-5)$



$b\le 0$

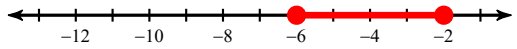
45) $-8n+5>6(6n+7)-7n$



$n<-1$

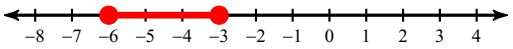
Solve each compound inequality and graph its solution.

46) $6x-2\le -14$ and $-7+2x\ge -19$



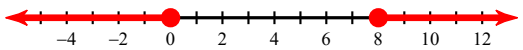
$-6\le x\le -2$

47) $4+2k\le -2$ and $1-8k\le 49$



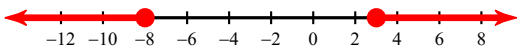
$-6\le k\le -3$

48) $5a-10\ge -2+4a$ or $3-9a\ge 10a+3$



$a\ge 8$ or $a\le 0$

49) $v+2\ge 2v+10$ or $-9v+8\le -4v-7$



$v\le -8$ or $v\ge 3$

Percentages

50) 2% of what is 110?

5500

51) 176% of 64 is what?

112.6

52) What is 92% of 51.2?

47.1

53) What percent of 62 is 54?

87.1%

54) 11% of what is 143?

1300

55) 34% of what is 7?

20.6

56) What is 89% of 8?

7.1

57) What percent of 106 is 84?

79.2%

Find each percent change. State if it is an increase or a decrease.

58) From 49 to 84.9

73.3% increase

59) From 36 to 39

8.3% increase

60) From 29 to 21

27.6% decrease

61) From 70 to 51

27.1% decrease

62) From 97 to 79

18.6% decrease

63) From 56 to 74

32.1% increase

64) From 58 to 20

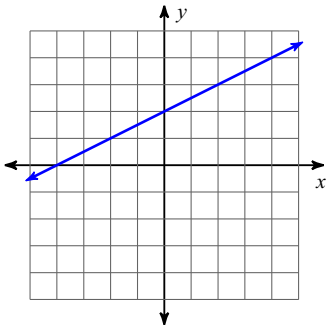
65.5% decrease

65) From 98 to 71

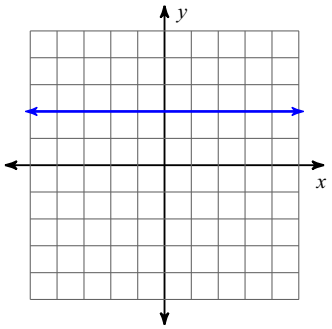
27.6% decrease

Linear Graphs

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

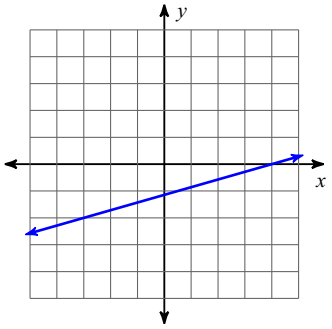


67)

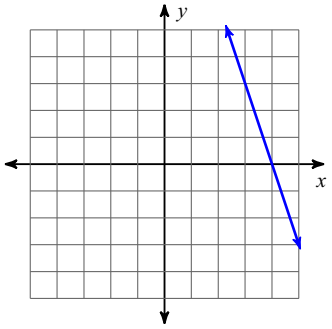


0

68) $\frac{2}{7}$



69)



-3

Find the slope of the line through each pair of points.

70) $(-1, 11), (20, -9)$ $-\frac{20}{21}$

71) $(-6, -17), (13, -15)$ $\frac{2}{19}$

72) $(9, 17), (20, -2)$ $-\frac{19}{11}$

73) $(18, -15), (-17, -6)$ $-\frac{9}{35}$

Find the slope of each line.

74) $y = \frac{1}{4}x - 4$ $\frac{1}{4}$

75) $y = \frac{2}{5}x - 5$ $\frac{2}{5}$

76) $y = \frac{8}{3}x - 5$ $\frac{8}{3}$

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

Find the slope of a line parallel to each given line.

78) $y = 3x - 2$

3

79) $y = -2x - 5$

-2

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

81) $y = -\frac{3}{4}x - 1$ $-\frac{3}{4}$

Find the slope of a line perpendicular to each given line.

82) $y = -\frac{5}{4}x$ $\frac{4}{5}$

83) $y = -\frac{5}{4}x + 4$ $\frac{4}{5}$

84) $y = -\frac{4}{3}x + 5$ $\frac{3}{4}$

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

Find the value of x or y so that the line through the points has the given slope.

86) $(4, y)$ and $(-3, 3)$; slope: $-\frac{2}{7}$

1

87) $(-9, -4)$ and $(x, 3)$; slope: $\frac{7}{10}$

1

88) $(0, 1)$ and $(6, y)$; slope: $-\frac{4}{3}$

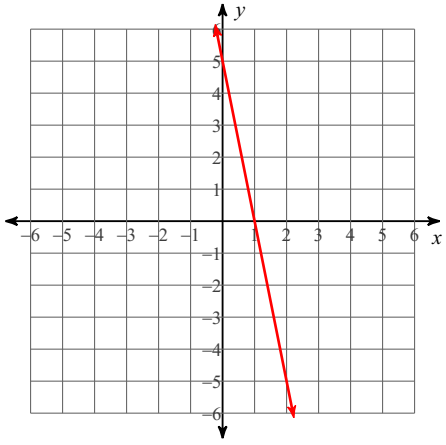
-7

89) $(-9, 4)$ and $(-6, y)$; slope: -4

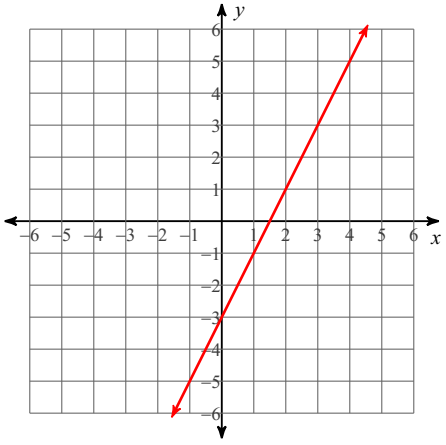
-8

Sketch the graph of each line.

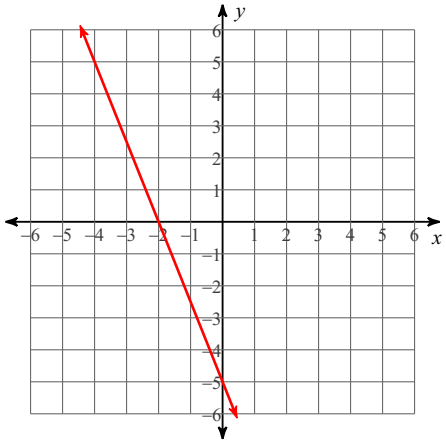
90) $y = -5x + 5$



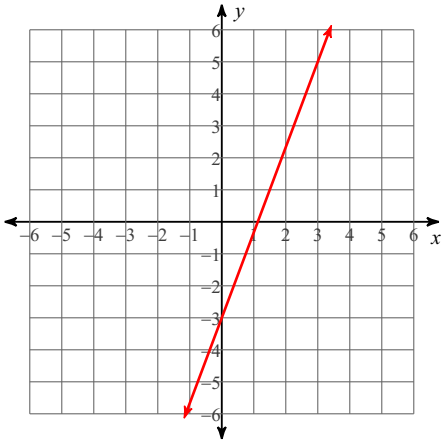
91) $y = 2x - 3$



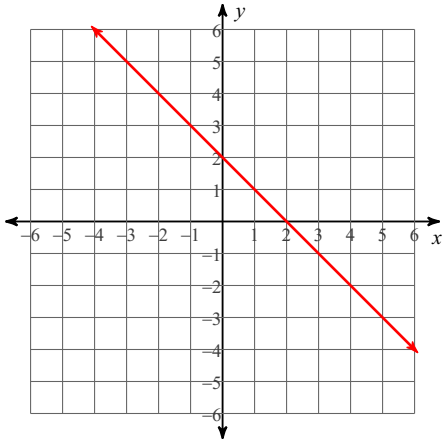
92) $y = -\frac{5}{2}x - 5$



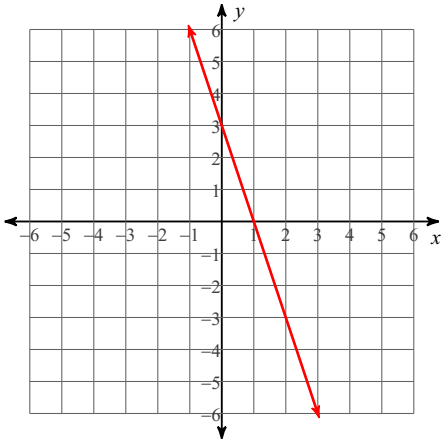
93) $y = \frac{8}{3}x - 3$



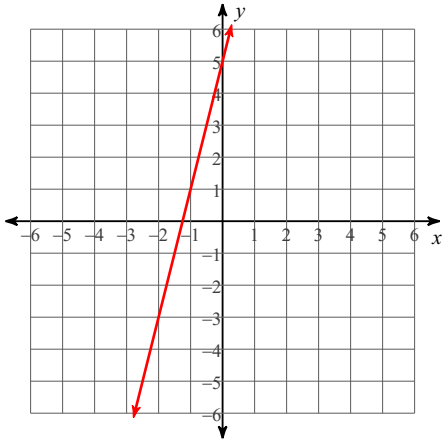
94) $x + y = 2$



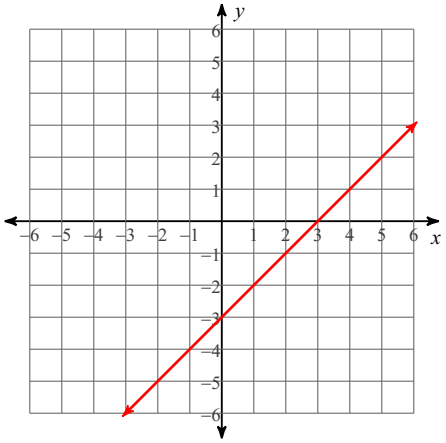
95) $3x + y = 3$



96) $4x - y = -5$

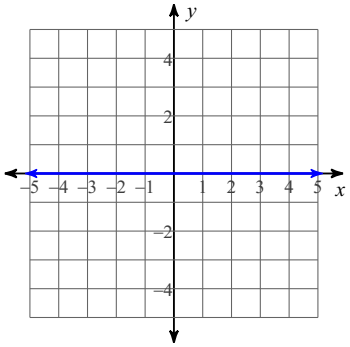


97) $x - y = 3$



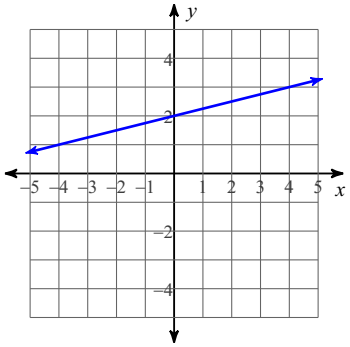
Write the slope-intercept form of the equation of each line.

98)

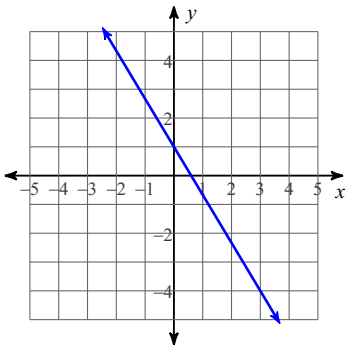


$y = 0$

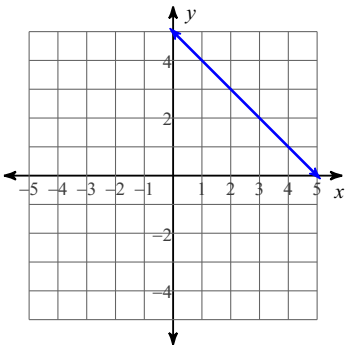
99) $y = \frac{1}{4}x + 2$



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



101)



$y = -x + 5$

Write the slope-intercept form of the equation of each line given the slope and y-intercept.

102) Slope $= -\frac{3}{4}$, y-intercept $= -2$ $y = -\frac{3}{4}x - 2$

103) Slope = 3, y-intercept = 3

$y = 3x + 3$

104) Slope $= -\frac{4}{5}$, y-intercept $= -4$ $y = -\frac{4}{5}x - 4$

105) Slope $= \frac{1}{3}$, y-intercept $= -1$ $y = \frac{1}{3}x - 1$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

106) through: $(4, 3)$, slope $= \frac{3}{4}$ $y = \frac{3}{4}x$

107) through: $(1, -2)$, slope $= -\frac{2}{5}$ $y = -\frac{2}{5}x - \frac{8}{5}$

108) through: $(-2, 3)$, slope $= -2$
$y = -2x - 1$

109) through: $(-3, -3)$, slope $= \frac{4}{3}$ $y = \frac{4}{3}x + 1$

Write the slope-intercept form of the equation of the line through the given points.

110) through: $(4, -3)$ and $(-1, -5)$ $y = \frac{2}{5}x - \frac{23}{5}$

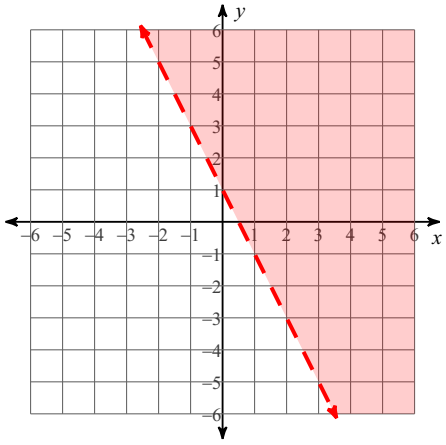
111) through: $(3, 1)$ and $(5, 2)$ $y = \frac{1}{2}x - \frac{1}{2}$

112) through: $(4, 4)$ and $(1, -1)$ $y = \frac{5}{3}x - \frac{8}{3}$

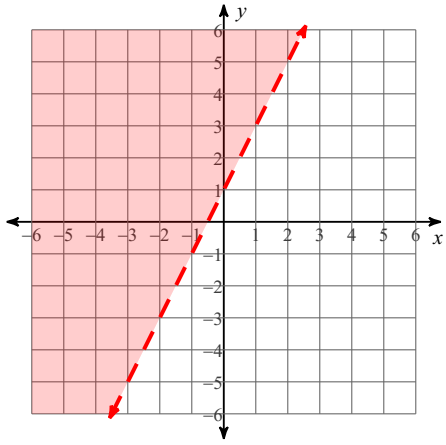
113) through: $(-3, 2)$ and $(2, 3)$ $y = \frac{1}{5}x + \frac{13}{5}$

Sketch the graph of each linear inequality.

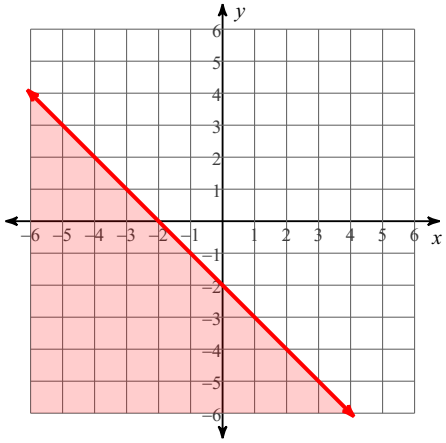
114) $y > -2x + 1$



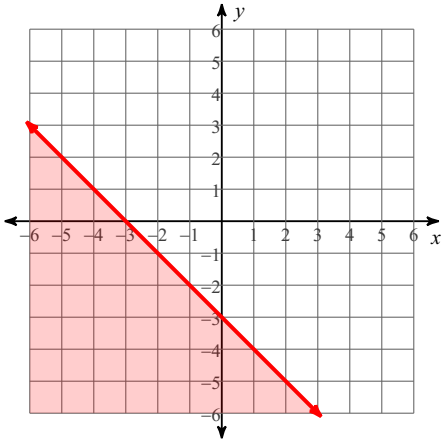
115) $y > 2x + 1$



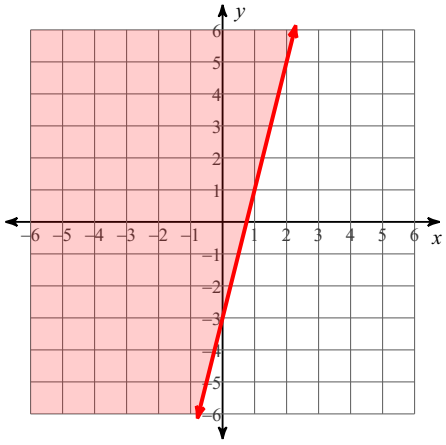
116) $y \leq -x - 2$



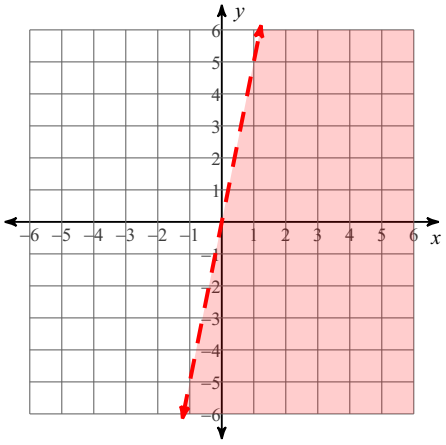
117) $y \leq -x - 3$



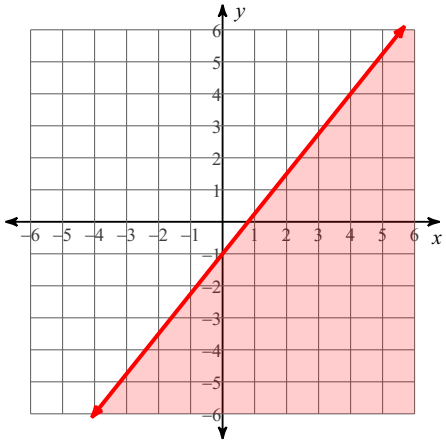
118) $y \geq 4x - 3$



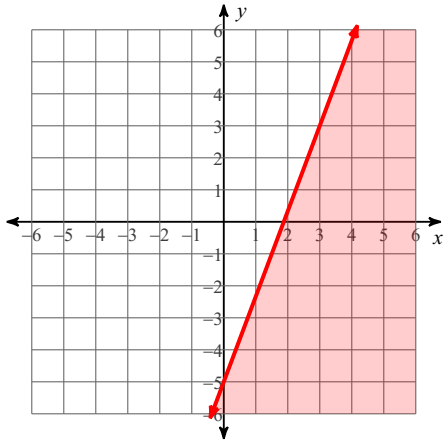
119) $y < 5x$



120) $y \le \frac{5}{4}x - 1$



121) $y \le \frac{8}{3}x - 5$



Exponents

122) $2b^0 \cdot ac^{-3}$ $\frac{2a}{c^3}$

123) $2kh^3j^4 \cdot 3kh^{-4}j^{-2}$ $\frac{6k^2j^2}{h}$

124) $4m^0p^2 \cdot 3q^{-3}$ $\frac{12p^2}{q^3}$

125) $3a \cdot 2a^3b^3c^{-1}$ $\frac{6a^4b^3}{c}$

Simplify. Your answer should contain only positive exponents.

126) $(3x^4y^{-4})^{-3}$ $\frac{y^{12}}{27x^{12}}$

127) $(4ab)^{-4}$ $\frac{1}{256a^4b^4}$

128) $(3y)^{-3}$ $\frac{1}{27y^3}$

129) $(2yx^4)^3$
$8y^3x^{12}$

130) $\frac{3x^3y^4}{x^3}$
$3y^4$

131) $\frac{yx^{-4}}{3x^4y^3}$ $\frac{1}{3x^8y^2}$

132) $\frac{3x^0}{4x^2y^3}$ $\frac{3}{4x^2y^3}$

133) $\frac{3u^0v^3}{4u^0v^4}$ $\frac{3}{4v}$

134) $\frac{(2x^0y^2)^{-1}}{2x^4y^{-4} \cdot x^4y^{-4}}$ $\frac{y^6}{4x^8}$

135) $\frac{(x^0y^0)^0}{2x^4y^{-1} \cdot yx^4}$ $\frac{1}{2x^8}$

136) $\left(\dfrac{2x^{-4}y^{-2}}{x^{-4}\cdot 2xy^{-1}\cdot 2y^{-1}}\right)^{-1}$

$2x$

137) $\dfrac{m^{0}}{\left(m^{-4}n^{2}\right)^{-4}\cdot 2m^{0}}$ $\dfrac{n^{8}}{2m^{16}}$

138) $\left(\dfrac{2^{2}\cdot 2^{-4}}{2^{4}}\right)^{-4}$

2^{24}

139) $\dfrac{2\cdot\left(2^{3}\right)^{2}}{2^{3}\cdot 2^{3}}$

2

140) $\dfrac{2^{-3}}{2^{4}\cdot 2^{4}}$ $\dfrac{1}{2^{11}}$

141) $\left(\dfrac{2\cdot 2^{3}}{2^{-3}}\right)^{-3}$ $\dfrac{1}{2^{21}}$

Write each number in scientific notation.

142) 0.012

1.2×10^{-2}

143) 790000

7.9×10^{5}

144) 522

5.22×10^{2}

145) 0.0052

5.2×10^{-3}

146) 180

1.8×10^{2}

147) 49.7

4.97×10^{1}

148) 0.000078

7.8×10^{-5}

149) 400000

4×10^{5}