EDMUND W. GORDON

BROOKLYN LAB CHARTER SCHOOL

EST. 2013

Rising Grade 8 Math 2025
Summer Homework Packet

BROOKLYN LAB CHARTER SCHOOL

Name:_____

Skills Review for Students Entering Eighth Grade

The following is a review of math skills from Seventh Grade. Please complete this review over the summer. It is due on the first day of class. The purpose of the packet is to provide an opportunity for you to refresh yourself on some of the math skills that you will be using throughout Eighth Grade. Solutions to the problems are attached for you to check your answers. If you have difficulty with any topics, it is recommended that you invest some time over the summer reviewing those particular skills. We recommend using the Khan Academy 7th Grade resources found online for extra support. Please show all work where calculations are necessary.

Topic 1: Integers and Rational Numbers

1) Which of these numbers is NOT divisible by 2, 3, 4, 5, 6 and 9?

a. 767,880
b. 1,273,320
c. 4,222,368
d. 6,665,400

2) Find the GCF of 91 and 26 using prime factorization.

a. 52
b. 13
c. 17
d. 26

3) Write the decimal as a mixed number or fraction in simplest form: 0.54

a. $\frac{27}{50}$
b. $\frac{1}{2}$
c. $\frac{14}{25}$
d. $1\frac{23}{27}$

4) Determine which rational number is greater, $\frac{17}{20}$ *or* $\frac{12}{14}$ by rewriting them with their LCDs.

a. $\frac{12}{14}$

b. $\frac{17}{20}$

5) Which of the following is ordered from least to greatest?

a. -5, -12, 0, -3, -8
b. 0, -12, -8, -5, -3
c. -12, -8, -5, -3, 0
d. 0, -3, -5, -8, -12

6) Order the set of numbers from least to greatest: $\frac{2}{9}, 0.67, -\frac{2}{5}, 0.6$

a. $0.67, 0.6, \frac{2}{9}, -\frac{2}{5}$

b. $-\frac{2}{5}, \frac{2}{9}, 0.6, 0.67$

c. $-\frac{2}{5}, 0.6, \frac{2}{9}, 0.67$

d. $\frac{2}{9}, 0.67, -\frac{2}{5}, 0.6$

7) (-8) + (+12)

a. - 20
b. + 20
c. + 4
d. – 4

8) $7 + (-6)$

a. -1

b. +1

c. -13

d. +13

9) $-5 + (-8)$

a. -13
b. +13
c. -3
d. +3

10) Rewrite using addition. (+7) - (-6)

a. (+6) + (-7)
b. (+7) + (+6)
c. (+6) + (–1)
d. (+7) + (-6)

11) -28 – (+3)

a. +31
b. +25
c. –25
d. –31

12) 4 – (-3)

a. -1
b. +1
c. -7
d. +7

13) -9 – 10

a. +1
b. -1
c. +19
d. -19

14) 5 – 15

a. +10
b. -10
c. +20
d. -20

15) -20 – (-2)

a. +18
b. -18
c. +22
d. -22

16) The temperature is 15°C and drops 8°C. Write an addition equation to calculate the final temperature. What is the final temperature?

a. (+15) + (+8) = +9; 9°C
b. (+8) + (+15) = +23; 23°C
c. (+8) + (-15) = –7; –7°C
d. (+15) + (-8) = +7; 7°C

17) Find the sum or difference. Write your answer in simplest form.

$$\frac{1}{2}+\left(-\frac{1}{6}\right)$$

a. $\frac{2}{3}$
b. $\frac{1}{3}$
c. $\frac{1}{6}$
d. $\frac{13}{24}$

18) 12(-7)

a. -96
b. -77
c. 96
d. -84

19) -10(-10)

a. 100
b. 110
c. -100
d. -110

20) $-8 \cdot (-3) \cdot (-3) \cdot (-5)$

a. -77
b. -123
c. 360
d. -360

21) Find the product: $-\frac{4}{5} \cdot \frac{1}{3}$

a. $-2\frac{2}{5}$
b. $-\frac{4}{15}$
c. $\frac{4}{15}$
d. $2\frac{2}{5}$

22) -18 ÷ 3

a. -5
b. -7
c. 6
d. -6

23) -63 ÷ (-9)

a. -8
b. 8
c. -7
d. 7

24) Find the quotient: $-2\frac{2}{3} \div \frac{4}{5}$

a. $-3\frac{1}{3}$
b. $-\frac{5}{6}$
c. $-2\frac{2}{15}$
d. $-2\frac{5}{6}$

25) Which of the following is NOT true?

a. $|-11| = 11$
b. $|-5| = -5$
c. $|23| = 23$
d. $|-1.5| = 1.5$

Topic 2: Real Numbers

26) Write using exponents: $7 \cdot 7 \cdot 7 \cdot 7 \cdot 7 \cdot a \cdot a \cdot a \cdot a \cdot a \cdot b \cdot b \cdot b \cdot c \cdot c \cdot c \cdot c$

a. $7^5 \cdot 5a \cdot 3b \cdot 4c$
b. $7^5 \cdot a^5 \cdot b^3 \cdot c^4$
c. $5^7 \cdot a^5 \cdot b^3 \cdot c^4$
d. $5^7 \cdot 5a \cdot 3b \cdot 4c$

27) $(-2)^4$

a. 16
b. -8
c. 8
d. -16

28) -2^3

a. -6
b. 6
c. 8
d. -8

29) $(-1)^{21}$

a. -1
b. -21
c. 1
d. 21

30) -5^4

a. -20
b. 20
c. -625
d. 625

31) Rational numbers include everything except:

a. Fractions
b. Decimals
c. Non-repeating, never ending decimals
d. Integers

32) Which of the following is an irrational number?

a. $\frac{4}{3}$
b. $\sqrt{24}$
c. $\sqrt{81}$
d. -4.07

33) Find $\sqrt{121}$

a. 13
b. 11
c. 10
d. 60

34) If $\sqrt[3]{x} = 5$, what is the value of x?

a. 25
b. 50
c. 125
d. 175

35) What is the value of $\sqrt[3]{64}$?

a. 4
b. 8
c. 16
d. 32

36) Estimate the square root of 37

a. between 4 and 5
b. between 5 and 6
c. between 6 and 7
d. between 7 and 8

37) Estimate the square root of 70

a. 6
b. 7
c. 8
d. 9

38) $y \cdot y^{12}$

a. $2y^{12}$
b. y^{12}
c. y^{13}
d. $2y^{13}$

39) $s^4 \cdot s^8 \cdot s^3$

a. s^{35}
b. s^{15}
c. s^{11}
d. s^{12}

40) $(4x^4)(7x^5)$

a. $28x^{20}$
b. $-28x^9$
c. $-28x^{20}$
d. $28x^9$

41) $(y^8)^9$

a. y^{72}
b. $9y^{72}$
c. $9y^8$
d. y^{17}

42) $(5^3)^{10}$

a. 25^3
b. 5^{13}
c. 25^{30}
d. 5^{30}

43) $\frac{x^3}{x}$

a. x^2
b. 3
c. $x^3 - x$
d. x^4

44) Write the number in standard form: 9.82×10^3 (Optional!)

a. 98,200
b. 982,000
c. 9,820
d. 982

45) Write the number in scientific notation: 0.00000199 (Optional!)

a. 0.199×10^{-5}
b. 19.9×10^{-7}
c. 1.99×10^{-6}
d. 199×10^{-8}

Topic 3: Proportional Relationships

46) Write the ratio in simplest form: $\frac{40\ inches}{2\ inches}$

a. $\frac{5}{3}$
b. $\frac{20}{1}$
c. 80
d. $\frac{3}{5}$

47) The price of 8.4 ounces of crackers is $2.42. What is the unit price? Round your answer to the nearest cent.

a. $0.15 per ounce
b. $3.47 per ounce
c. $28.81 per ounce
d. $0.29 per ounce

48) Find the unit rate. Round to the nearest hundredth, if necessary:

344 miles in 11 hours

a. 344 miles/hour
b. 3784 miles/hour
c. 0.03 miles/hour
d. 31.27 miles/hour

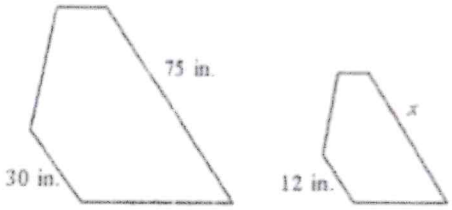
49) Solve the proportion. If necessary, round to the nearest hundredth: $\frac{63}{126} = \frac{x}{4}$

a. 2
b. 1
c. 7
d. 16

50) Use cross products to determine which of the following pairs of ratios cannot form a proportion.

a. $\frac{1}{3}, \frac{3}{9}$
b. $\frac{2}{3}, \frac{4}{9}$
c. $\frac{2}{3}, \frac{4}{6}$
d. $\frac{1}{3}, \frac{2}{6}$

51) The pair of polygons is similar. Find the value of x.



a. 187.5 in
b. 12 in
c. 30 in
d. 37.5 in

52) The scale of a map is 1 in: 75 mi. How many actual miles does 0.85 inch represent?

a. 88.2 miles
b. 63.75 miles
c. 95.6 miles
d. 4,781.3 miles

Topic 4: Percent

53) Write the fraction as a percent. Round to the nearest hundredth of a percent if necessary: $\frac{8}{9}$

a. 88.89%
b. 1.13%
c. 44.44%
d. 66.67%

54) Write the decimal as a percent: 0.041

a. 41%
b. 4.1%
c. 410%
d. 0.41%

55) Write the percent as a fraction in simplest form: 8%

a. $\frac{4}{5}$

b. $\frac{8}{100}$

c. $\frac{2}{25}$

d. $\frac{8}{10}$

56) Write the percent as a decimal: 359%

a. 35.9

b. 35,900

c. 3,590

d. 3.59

57) Carrie and nine of her friends go out to dinner. The total bill comes to $191.10. They decide to leave a 15% tip which will be added on to the cost of the total bill. Each person will contribute an equal amount to the total. Which is the closest estimate to what each person should contribute?

a. $23.00

b. $30.00

c. $3.00

d. $2.10

58) A recent survey showed that 48% of 155 students in a school had traveled by plane in the last year. Which is the closest estimate to the number of students who have traveled by plane in the last year?

a. 10 students

b. 116 students

c. 80 students

d. 12 students

59) Write and solve a proportion to find the given percent of a number: 13% of 596

a. $\frac{n}{100} = \frac{13}{596}$; 2.18

b. $\frac{n}{596} = \frac{13}{100}$; 77.48

c. $\frac{n}{100} = \frac{13}{596}$; 0.22

d. $\frac{n}{596} = \frac{13}{100}$; 7.75

60) Use a proportion to solve the problem. 10 is 32% of what number?

a. $\frac{w}{10} = \frac{32}{100}$; 32

b. $\frac{10}{w} = \frac{32}{100}$; 31.25

c. $\frac{w}{10} = \frac{32}{100}$; 3.2

d. $\frac{10}{w} = \frac{32}{100}$; 312.5

61) During the basketball season, Diane took 134 shots and made about 56% of them. How many shots did Diane make? The team made a total of 498 shots. What percent of the team's made shots did Diane make?

a. 24 shots; 15.1%
b. 753 shots; 27%
c. 240 shots; 27%
d. 75 shots; 15.1%

62) Use an equation to solve the problem: 224 is 25% of what number?

a. 224(0.25) = w; 560
b. 224 = 0.25w; 896
c. 224(0.25) = w; 56
d. 224 = 0.25w; 90

63) What percent of 8 is 1,280?

a. 1.6%
b. 1,600%
c. 160%
d. 16,000%

64) Find the percent of increase. Round to the nearest tenth of a percent where necessary. Which of the following represents a change from 32 to 40?:

a. An increase of 20%
b. An increase of 25%
c. An increase of 8%
d. A decrease of 20%

65) The sales of KIDZ sneakers rose from $1.5 billion to $2.8 billion. Find the percent of increase. Round to the nearest tenth of a percent where necessary.

a. 18.7%
b. 0.5%
c. 86.7%
d. 46.4%

66) Find the percent of decrease. Round your answer to the nearest whole percent where necessary. Last year a poll of 1000 voters conducted by the staff of Senator Chun found that 522 people approved of the job the senator was doing. This year, a new poll of 1000 voters shows that 423 people approve of the senator's performance. Find the percent of change in the number of voters who approve of the senator's performance, and identify it as an increase or decrease.

a. 19%; increase
b. 23%; decrease
c. 23%; increase
d. 19%; decrease

67) The owner of an audio store received a shipment of portable stereos at a cost of $102.30 each. If he sells the stereos for $181.99 each, what is the percent of markup? Round to the nearest whole percent.

a. 8%
b. 8%
c. 78%
d. 66%

68) Find the percent of discount. Round to the nearest whole percent.
Regular price: $120
Sale price: $105.50

a. 12%
b. 1%
c. 14%
d. 15%

69) In Store A, a book that regularly sells for $24.99 is on sale at 15% off. In Store B the same book regularly sells for $27.99 and is on sale at 25% off. Which store sells the book for the lower sale price?

a. Store A; Store A's sale price is $18.74 and Store B's sale price is $23.79
b. Store A; Store A's sale price is $18.74 and Store B's sale price is $20.99
c. Store B; Store A's sale price is $21.24 and Store B's sale price is $20.99
d. Store B; Store A's sale price is $21.24 and Store B's sale price is $23.79

Topic 5: Equivalent Expressions

70) At a movie theater, all tickets are sold for $6.50 each. Write an algebraic expression for the total sales in dollars for *n* tickets.

a. n + 6.5
b. 6.5n
c. n-65
d. $\frac{n}{6.5}$

71) **Evaluate the expression for the given values.**

$\left(\frac{5a+b}{2}\right) \times c \quad for\ a = 2, b = 6, and\ c = 6$

a. 33
b. 48
c. 14
d. 36

72) **Evaluate the expression for the given values.**

$|a| + 2|b|\ for\ a = 3\ and\ b = 2$

a. 7
b. 1
c. -7
d. -1

73) **Evaluate the expression for the given values.**

$-a - 12\ for\ a = -8$

a. 4
b. -20
c. -4
d. 20

74) **Evaluate the expression for the given values.**

$cd - (d + c) for\ c = 3\ and\ d = -5$

a. -7
b. -23
c. -13
d. -17

75) **Evaluate the expression for the given values.**

$3x^3\ for\ x = -3$

a. 729
b. -81
c. 81
d. -729

76) **Simplify the expression.**

$9a - b - 2a - 10b$

a. -7a + 11b
b. 11b +9b
c. -11a-9b
d. 7a-11b

77) **Simplify the expression.**

$-5\ (a + 2)$

a. -5a – 3
b. -5a + 10
c. -5a + 2
d. -5a – 10

78) Which shows 3(x + 4) - 2x simplified?

a. x + 4
b. 5x + 4
c. x +12
d. 5x +12

Topic 6: Solve problems using equations and inequalities

79) **Solve the equation.** $-22 = p - 25$

a. 3
b. 47
c. -47
d. -3

80) **Solve the equation.** $\frac{y}{-20} = -3$

a. $\frac{3}{20}$
b. 17
c. -23
d. 60

81) **Solve the equation.** $\frac{y-5}{3} = 1$

a. -2
b. 8
c. 18
d. 6

82) **Solve the equation.** $6x + 29 = 5$

a. -4
b. -18
c. 204
d. -144

83) **Solve the equation.** $\frac{w}{4} - 4 = 3$

a. -4
b. 28
c. 3
d. 11

84) **Solve the equation.** $4(y-4) = 8$

a. -2
b. 2
c. 4
d. 6

85) **Solve the equation.** $2(5x - 3) = 14$

a. $x = 3$
b. $x = 2$
c. $x = 4$
d. $x = 5$

86) **Solve the equation.** $5h - 9 = -16 + 6h$

a. 4
b. -7
c. 7
d. 10

87) Write and solve an equation: This year, 14,265 people applied to a particular college. The number of applicants increased by 868 from last year. How many people, p, applied last year?

a. $868 + p = 14{,}265$; 13,397 people
b. $p - 14{,}265 = 868$; 15,133 people
c. $p - 868 = 14{,}265$; 15,133 people
d. $p + 14{,}265 = 868$; 13,397 people

88) Solve $b + 2\frac{1}{6} = -1\frac{3}{8}$. Write the answer as a mixed number or a fraction in simplest form.

a. $-2\frac{13}{24}$

b. $-3\frac{13}{24}$

c. $\frac{19}{24}$

d. $-\frac{5}{24}$

89) Solve: $1\frac{1}{7}x + 1 = 4\frac{1}{2}$

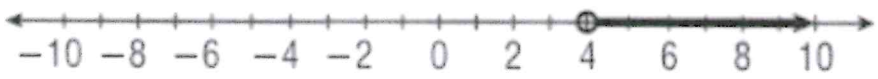
a. $4\frac{13}{16}$

b. $3\frac{7}{16}$

c. $3\frac{1}{16}$

d. 4

90) Which inequality is represented in the graph below:

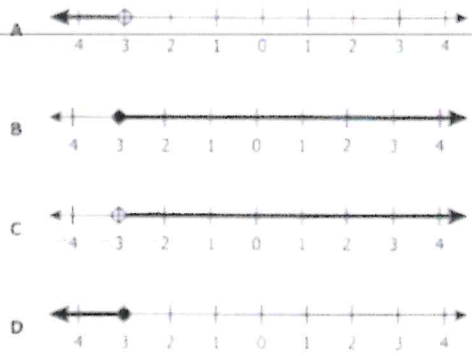


a. $x < 4$
b. $x > 4$
c. $x \leq 4$
d. $x \geq 4$

91) Which inequality is represented in the graph below:

a. $x < 1$
b. $x > 1$
c. $x \leq 1$
d. $x \geq 1$

92) Which graph shows the inequality: $x \leq -3$



93) Solve a + 3 ≥ 2.

a. a ≤ −1
b. a ≥ 1
c. a ≥ −1
d. a ≥ 5

94) Solve a − 6 ≥ −1.

a. a ≤ 5
b. a ≤ −5
c. a ≥ −5
d. a ≥ 5

95) Which is the solution to $-3 \leq \frac{x}{3}$?

a. x ≤ −9
b. x ≤ −1
c. x ≥ −9
d. x ≥ −1

96) Solve -8x > -48.

a. x > 6
b. x < 6
c. x < –6
d. x > -6

97) Solve. 3t – 12 ≤ –9

a. t ≥ –7
b. t ≤ –7
c. t ≥ 1
d. t ≤ 1

98) Solve. $c - 10 + 3c < 2$

a. $c > -2$
b. $c < 3$
c. $c > 3$
d. $c < -2$

99) Solve. $2(b - 8) > 12$

a. $b > 20$
b. $b > 6$
c. $b > 14$
d. $b < 20$

Topic 7: Linear equations (If your class did not get to any of the topics in this section, you may skip those questions or try them for enrichment).

100) Combine like terms: $q + 12q$

a. $-13q$
b. $-11q$
c. $11q$
d. $13q$

101) Solve. $x + 2x - 4 = 14$

a. $x = 7$
b. $x = 5$
c. $x = 4$
d. $x = 6$

102) Solve. $-1 = -3x + 15 - 5x$

a. $x = 3$
b. $x = 6$
c. $x = 2$
d. $x = -1$

103) Solve. $6x + 7 = 3x + 16$

a. $x = 2$
b. $x = 4$
c. $x = 6$
d. $x = 3$

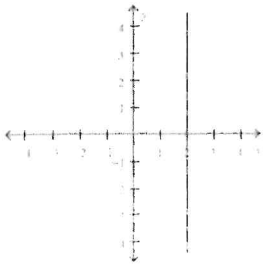
104) Solve. $-4 + 5n = 18 + 3n$

a. $n = 1.5$
b. $n = -11$
c. $n = 11$
d. $n = -12$

105) Solve. $2(2+3x) = 7x - 5$

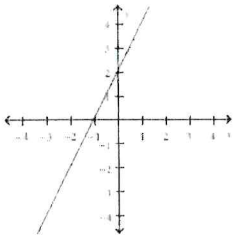
a. $x = -12$
b. $x = 9$
c. $x = -9$
d. $x = 12$

106) Tell whether the slope of the line is positive, negative, zero, or undefined.



a. Positive
b. Negative
c. Zero
d. Undefined

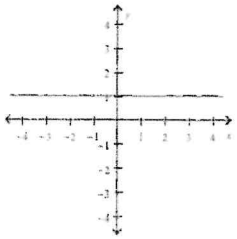
107) Tell whether the slope of the line is positive, negative, zero, or undefined.



a. Positive
b. Negative
c. Zero
d. Undefined

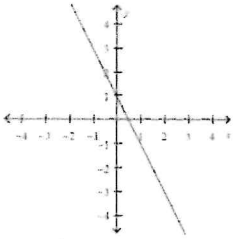
108) Tell whether the slope of the line is positive, negative, zero, or undefined.

a. Positive
b. Negative
c. Zero
d. Undefined

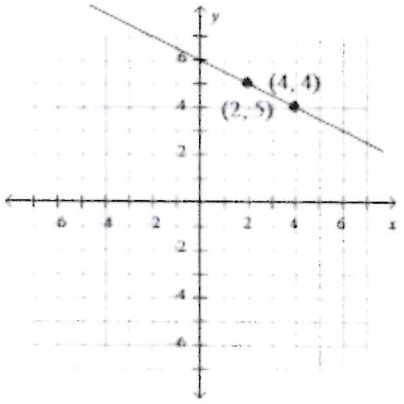


109) Tell whether the slope of the line is positive, negative, zero, or undefined.

a. Positive
b. Negative
c. Zero
d. Undefined

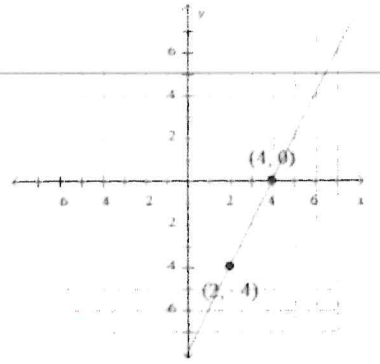


110) Find the slope of the line.



a. 1
b. ½
c. -2
d. – ½

111) Find the slope of the line.



a. 0
b. -2
c. 2
d. ½

112) Find the slope of the table.

x	y
-3	10
-1	4
1	-2

a. -6
b. -3
c. 6
d. 3

113) Find the slope of the table.

x	y
-3	-2
-1	0
1	2

a. -2
b. 1
c. 2
d. -1

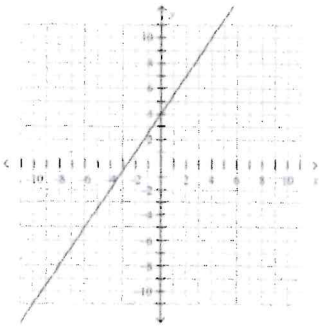
114) Find the slope and the y-intercept of the graph of the linear equation.
$y = -7x + 2$

a. slope: $-\frac{1}{7}$; y-intercept: 2
b. slope: $\frac{1}{2}$; y-intercept: –7
c. slope: –7; y-intercept: 2
d. slope: 2; y-intercept: –7

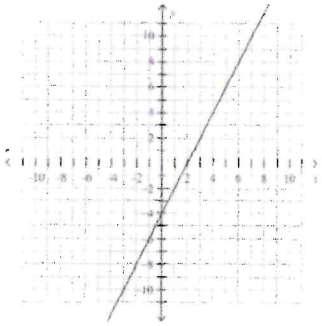
115) Select the graph that shows the line with the given slope that passes through the given point.

slope = 2; (-1,4)

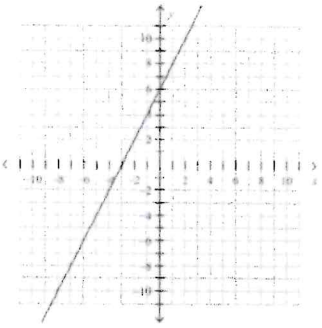
A)



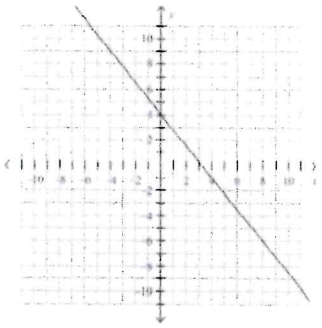
C)



B)

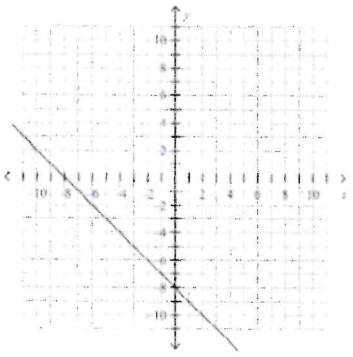


D)

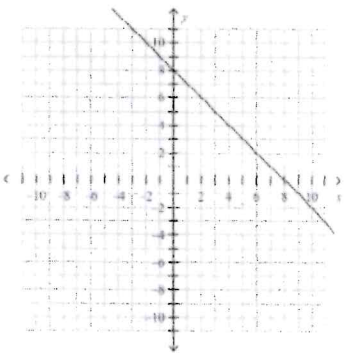


116) Select the graph that shows the line of the equation: $y = x - 8$

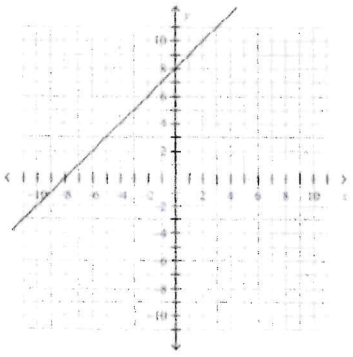
A)



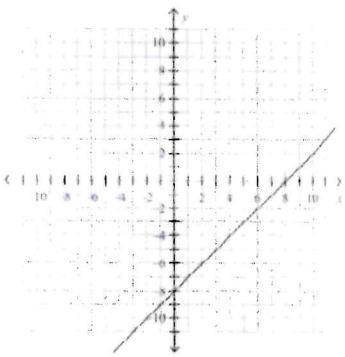
C)



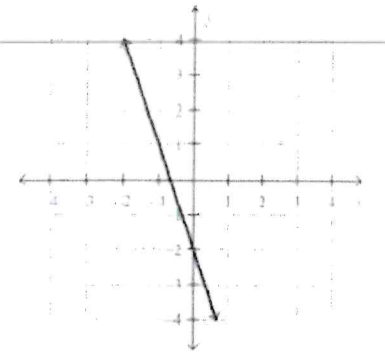
B)



D)

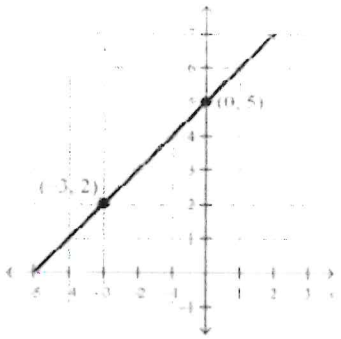


117) Which linear equation represents the graph?



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

118) Which linear equation represents the graph?



a. $y = -x + 5$
b. $y = x - 5$
c. $y = -x - 5$
d. $y = x + 5$

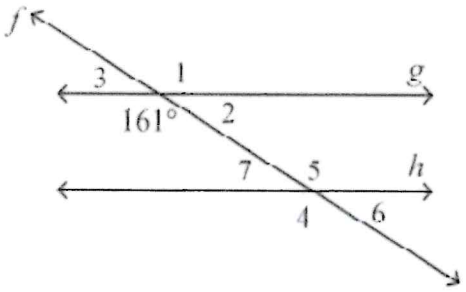
Topic 8: Solve problems involving geometry

119) Select the measure of the complement of a 55.1° angle. If there is no complement, select *no complement*.

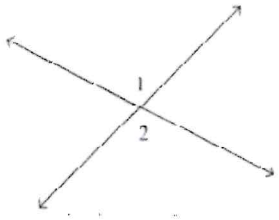
a. 124.9°
b. 119.9°
c. 34.9°
d. no complement

120) Use the figure to find the measure of ∠2

a. 29°
b. 151°
c. 161°
d. 19°

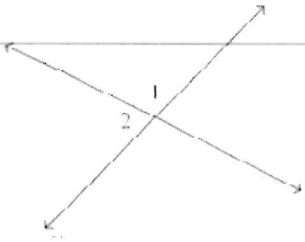


121) Classify the angle pair using all names that apply.



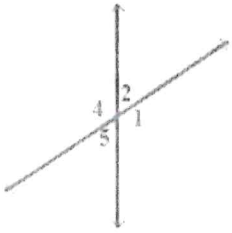
a. vertical, congruent
b. supplementary
c. adjacent, congruent
d. vertical

122) Classify the angle pair using all names that apply.



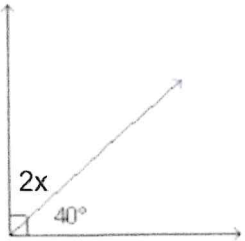
a. adjacent, supplementary
b. adjacent
c. vertical, supplementary
d. supplementary

123) Which are two pairs of adjacent angles in the figure below?



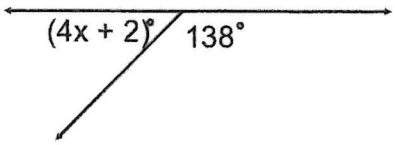
a. $\angle 1$ and $\angle 4$, $\angle 2$ and $\angle 5$
b. $\angle 1$ and $\angle 4$, $\angle 1$ and $\angle 2$
c. $\angle 2$ and $\angle 5$, $\angle 2$ and $\angle 4$
d. $\angle 4$ and $\angle 5$, $\angle 2$ and $\angle 4$

124) Find the value of x in each figure.



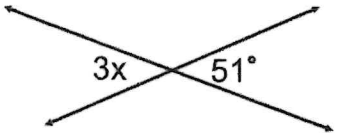
a. 50°
b. 25°
c. 40°
d. 60°

125) Find the value of x in each figure.



a. 42°
b. 40°
c. 10°
d. 138°

126) Find the value of x in each figure.



a. 51°
b. 129°
c. 10°
d. 17°