Algebra 1 Name_____ ID: 1

SEMESTER EXAM REVIEW PACKET

Date_____ Period____

UNIT 1 **Evaluate each expression.**

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

$-3(2) = \boxed{-6}$

2) $(-5+2)\left(\frac{-4}{-4}\right)$

$(-3)(1) = \boxed{-3}$

3) $(3)\left(\frac{16+(-4}{4}\right)$

$3\left(\frac{20}{4}\right) = 3(5) = \boxed{15}$

4) $\frac{2+3}{-6+1} = \frac{5}{-5} = \boxed{-1}$

Evaluate each using the values given.

5) $\frac{3+pm}{5}$; use $m = 4$, and $p = -2$

$\frac{3+(-2)(4)}{5} = \frac{3+-8}{5} = \frac{-5}{5}$

$\boxed{=-1}$

6) $-5 + z^2 + y$; use $y = -3$, and $z = -4$

$-5 + (-4)^2 + -3$

$-5 + 16 + -3$

$11 + -3$

$\boxed{8}$

7) $y^2 + 3z$; use $y = 5$, and $z = -1$

$(5)^2 + 3(-1)$

$25 + -3$

$\boxed{22}$

8) $\frac{q}{3} + p + 4$; use $p = -5$, and $q = -3$

$\frac{-3}{3} + -5 + 4$

$-1 + -5 + 4$

$\boxed{-2}$

9) $z - y + xz$; use $x = 2$, $y = -1$, and $z = -3$

$-3 - -1 + 2(-3)$

$-3 + 1 + -6 = \boxed{-8}$

10) $6q + qm$; use $m = -5$, and $q = 4$

$6(4) + 4(-5)$

$24 + -20 = \boxed{4}$

UNIT 2 REAL NUMBERS **Evaluate each expression.**

11) $(-2) + \left(-3\frac{5}{8}\right)$ CALC

$-2 + \frac{-29}{8} = \boxed{\frac{-45}{8}}$

12) $\left(-\frac{5}{7}\right) - \left(-\frac{7}{5}\right)$ $\boxed{\frac{24}{35}}$

13) $7 - 3\frac{4}{5}$

$7 - \frac{19}{5} = \boxed{\frac{16}{5}}$

14) $\left(-\frac{4}{7}\right) - \left(-\frac{3}{2}\right)$ $\boxed{\frac{13}{14}}$

Find each product.

15) $(2)\left(-\frac{6}{5}\right)$ $\frac{-12}{5}$

16) $\left(-\frac{2}{3}\right)\left(\frac{1}{4}\right)$ $-\frac{1}{6}$

17) $\left(\frac{1}{4}\right)\left(\frac{1}{10}\right)$ $\frac{1}{40}$

18) $\left(\frac{1}{3}\right)\left(-\frac{3}{4}\right)$ $\frac{-1}{4}$

Find each quotient.

ON CALC

19) $\frac{9}{8} \div \frac{11}{9}$ $\frac{81}{88}$

20) $\frac{-7}{5} \div \frac{5}{3}$ $\frac{-21}{25}$

21) $-2 \div \frac{-1}{2}$ 4

22) $\frac{1}{8} \div -9$ $-\frac{1}{72}$

Simplify each expression.

23) $7 - 7n + n - 2$ $5 - 6n$

24) $-8 + x - 4 + 9x$ $-12 + 10x$

25) $5(7a - 9)$ $35a - 45$

26) $-9(k + 3)$ $-9k - 27$

27) $7(7 - 10x) + 9x$ $49 - 70x + 9x = 49 - 61x$

28) $2x - 10(x + 6)$ $2x - 10x - 60$ $-8x - 60$

UNIT 3 SOLVE EQUATIONS **Solve each equation. Check your solution.**

29) $\frac{a}{12} = -11$ GA $a = -132$

30) $29 = 17 + v$ $-17 \quad -17$ $12 = v$

31) $4 = 3 + 5x - 4$ $4 = 5x - 1$ $+1 \quad +1$ $\frac{5}{5} = \frac{5x}{5}$ $1 = x$

32) $-8 + 2n - 6n = 20$ $-8 - 4n = 20$ $+8 \quad +8$ $\frac{-4n}{-4} = \frac{28}{-4}$ $n = -7$

33) $5(3+4m)+4=6+7m$

$15+20m+4=6+7m$

$19+20m=6+7m$

$-7m \quad -7m$

$19+13m=6$

$-19 \quad -19$

$\frac{13m}{13}=\frac{-13}{13}$

$m=-1$

34) $12-5n=7-4n$

$+5n \quad +5n$

$12=7+n$

$-7 \quad -7$

$5=n$

UNIT 4 **Solve each proportion.**

35) $\frac{x}{5}=\frac{3}{9}$ $9x=15$

$\frac{9}{9}=\frac{15}{9}$

$x=\frac{5}{3}$

36) $\frac{9}{4}=\frac{n}{8}$ $72=4n$

$\frac{72}{4}=\frac{4n}{4}$

$18=n$

37) $\frac{5}{3}=\frac{m-8}{5}$

$3(m-8)=25$

$3m-24=25$

$+24 \quad +24$

$\frac{3m}{3}=\frac{49}{3}$

$m=\frac{49}{3}$

38) $\frac{x+1}{6}=\frac{x+6}{4}$

$4(x+1)=6(x+6)$

$4x+4=6x+36$

$-4x \quad -4x$

$4=2x+36$

$-36 \quad -36$

$\frac{-32}{2}=\frac{2x}{2}$

$x=-16$

Solve each problem.

39) 18% of 18 is what?

$\frac{18}{100}=\frac{x}{18}$ or $324=100x$

$3.24=x$

40) What is 26% of 105?

$\frac{26}{100}=\frac{x}{105}$ $2730=100x$

$27.3=x$

41) 39% of what is 118.9?

$\frac{39}{100}=\frac{118.9}{x}$ $11890=39x$

$304.9=x$

42) 33% of 32 is what?

$\frac{33}{100}=\frac{x}{32}$ $1056=100x$

$10.56=x$

Solve the following equation for y.

43) $5x-2y=-2$

$-5x \quad -5x$

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

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

44) $5x=-10+2y$

$+10 \quad +10$

$\frac{5x+10}{2}=\frac{2y}{2}$

$\frac{5}{2}x+5=y$

CHAPTER 5 LINEAR FUNCTIONS **Find the slope.**

45) $(-15, 8), (-18, -9)$ $\frac{-9-8}{-18+15}=\frac{-17}{-3}$

$\frac{17}{3}$

46) $(-18, -3), (14, 6)$

$\frac{6-3}{14-18}=\frac{9}{32}$

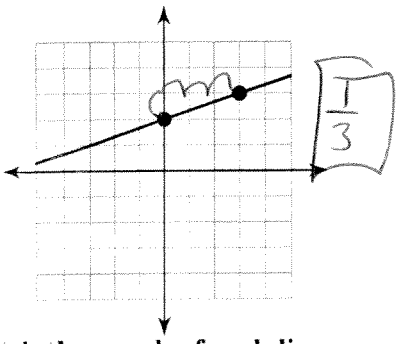
47) $y=-\frac{2}{5}x+2$

$-\frac{2}{5}$

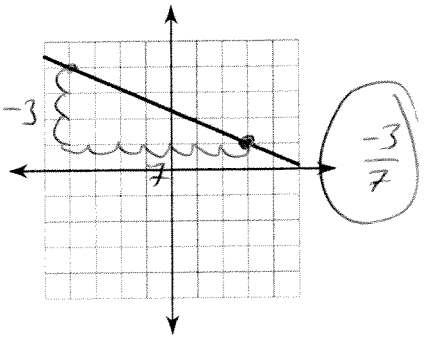
48) $y=4x+1$

$m=4$

49)

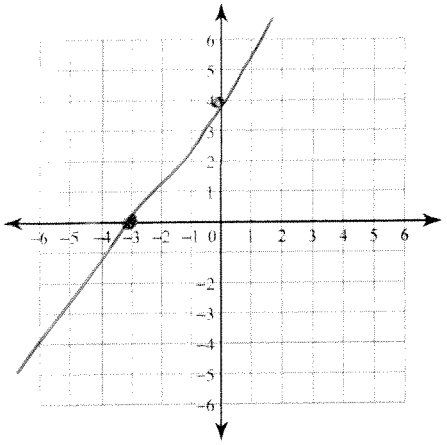


50)

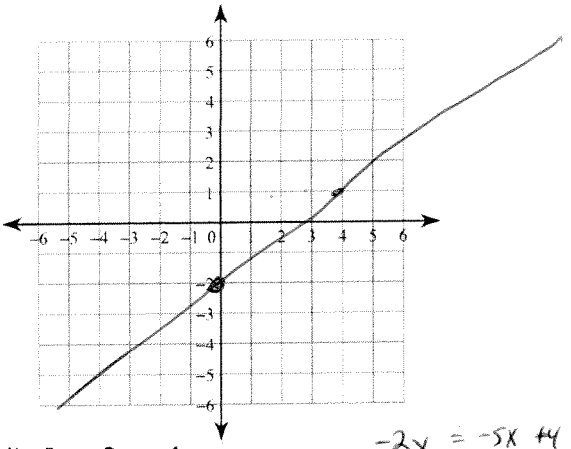


Sketch the graph of each line.

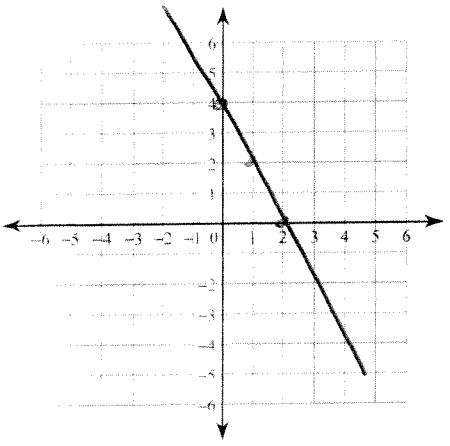
51) x-intercept = –3, y-intercept = 4



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



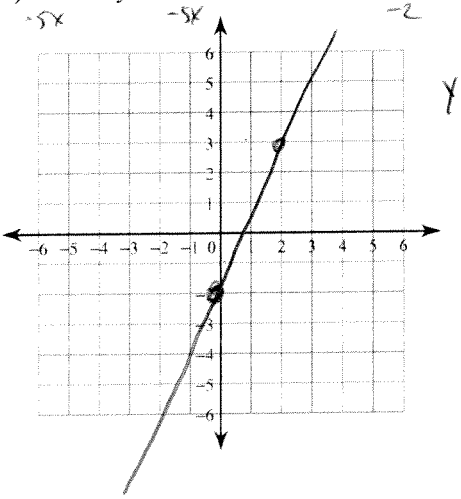
53) $y = -2x + 4$



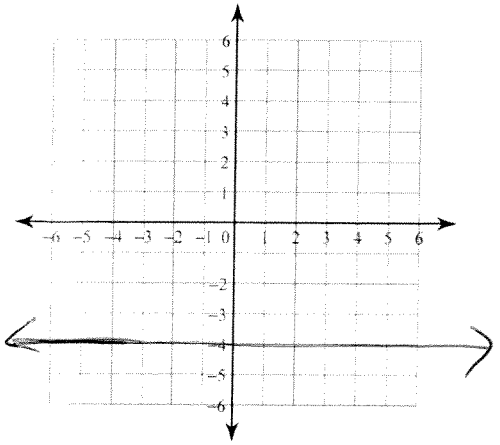
54) $5x - 2y = 4$

$\frac{-2y}{-2} = \frac{-5x}{-2} + \frac{4}{-2}$

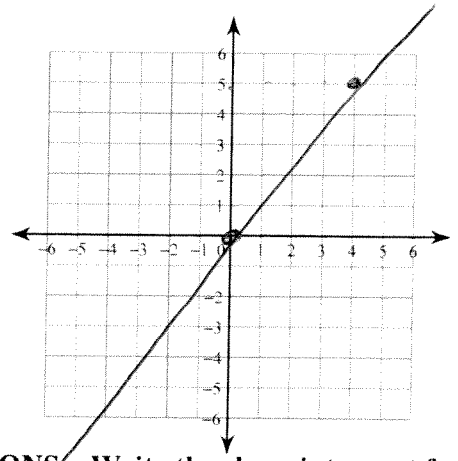
$y = \frac{5}{2}x - 2$



55) $y = -4$

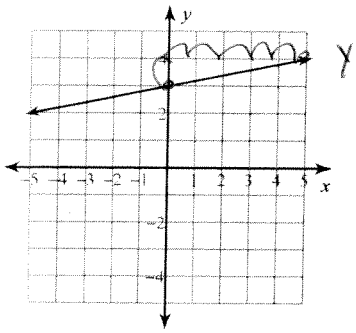


56) $y = \frac{5}{4}x$



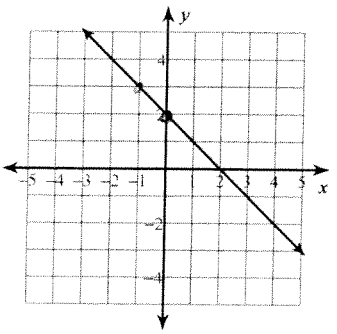
UNIT 6 WRITE EQUATIONS OF LINEAR FUNCTIONS **Write the slope-intercept form of the equation of each line.**

57)



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

58)



$y = -x + 2$

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

59) through: $(0, 1)$ and $(-5, 5)$

$\frac{5-1}{-5-0} = \frac{4}{-5}$

$y = -\frac{4}{5}x + 1$

60) through: $(3, 5)$ and $(4, 2)$

$\frac{2-5}{4-3} = \frac{-3}{1} = -3$

$y = -3x + 14$

$y = mx + b$
$2 = -3(4) + b$
$2 = -12 + b$
$+12 \quad +12$
$14 = b$

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

61) through: $(1, 2)$, parallel to $y = 4x + 2$

$m = 4$

$y = mx + b$
$2 = (4)(1) + b$
$2 = 4 + b$
$-4 \quad -4$
$-2 = b$

$y = 4x - 2$

62) through: $(4, 1)$, perp. to $y = -\frac{2}{3}x - 2$

$\rightarrow \frac{3}{2} = m$

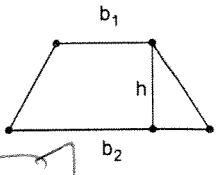
$y = mx + b$
$1 = \frac{3}{2}(4) + b$
$1 = 6 + b$
$-6 \quad -6$
$-5 = b$

$y = \frac{3}{2}x - 5$

Exam Review Applications

UNIT 1 EXPRESSIONS, EQUATIONS, FUNCTIONS

Find the area of a trapezoid with $b_1 = 12$, $b_2 = 8$, $h = 4$. Use the diagram to help.



$$\text{Area of Trapezoid} = \frac{(b_1 + b_2)h}{2}$$

$\frac{(12+8)(4)}{2}$

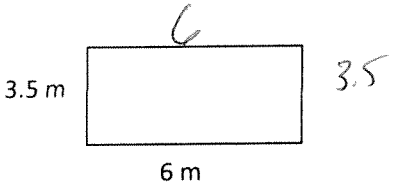
$\frac{20(4)}{2} = \frac{80}{2} = 40$

UNIT 2 REAL NUMBERS

Find the area and perimeter of the following...

Find the area and perimeter of the rectangle.

p = add up all the sides $A = lw$

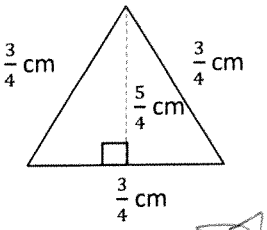


Perimeter = 19 m

Area = $3.5 \times 6 = 21$ m^2

Find the area and perimeter of the triangle.

p = add up all the sides $A = \frac{1}{2}bh$



Perimeter = $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \frac{9}{4}$ cm

Area = $\frac{1}{2}\frac{3}{4}\left(\frac{5}{4}\right) = \frac{15}{32}$ cm^2 $\frac{15}{32}$

UNIT 3 SOLVING SIMPLE EQUATIONS

Sully loves iceskating. Luckily, there is a skating rink downtown that allows him to fullfill his dream. Sully can purchase a membership for 30€. The cost of admission to the skating rink is 5€ for members, but 7€ for nonmembers.

a) Write an expression that represents the total cost of the skating rink ***without*** a membership. $7x$

b) Write an expression that represents the total cost of the skating rink ***with*** a membership. $30 + 5x$

c) Use your expressions to write an equation that determines the number of visits needed so the total cost will be the same for members and nonmembers.

$7x = 30 + 5x$

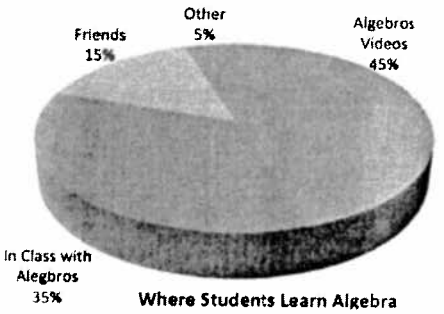
d) Solve your equation.

$2x = 30$

$x = 15$ visits

UNIT 4 SOLVING PROPORTIONS

The circle graph shows the results of a survey which asks Algebra students on MyAlgebra.weebly.com where they learn their Algerba from. 160 total students took the survey.



a) How many students said they learn Algebra from the videos?

$\frac{45}{100} = \frac{x}{160}$ 72kids

b) Suppose 28 more students take the survey and all of them reply "videos". Calculate the new percent of students that learn Algebra from the Videos.

$\frac{72+28}{160+28} = \frac{x}{100}$

$\frac{100}{188} = \frac{x}{100}$ 53%

UNIT 5 GRAPHING LINEAR EQUATIONS

Fill in the following...

VERBAL: Sully has 8 nickels. He loses 3 nickels every 2 days.

TABLE

Time (days)	Nickels (#)
0	8
2	5
4	2
6	−1
20	

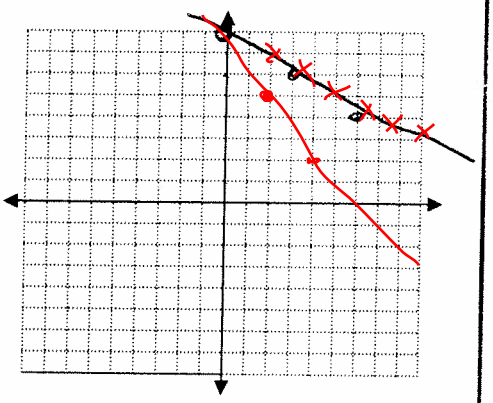
EQUATION

$y = \frac{3}{2}x + 8$ $y = -\frac{3}{2}x + 8$

Initial Value (y-intercept) = 8

Rate of Change (slope) $-\frac{3}{2}$

GRAPH



UNIT 6 WRITING LINEAR EQUATIONS

Mr. Brust needs to make some side cash to pay for some tickets to see his favorite singer, Justin Beiber's next show, so he does some tutoring. After 2 hours of tutoring he has $35. The next week he checks and after 10 hours of tutoring he has $115. (2, 35) (10, 115)

a) Write an equation that models how much money Mr. Brust has as a function of how many hours he's worked.

$y = mx + b$

$35 = 2(10) + b$

$15 = b$

$\frac{115-35}{10-2} = \frac{80}{8} = 10$

$y = 10x + 15$

b) How much money does Mr. Brust have after tutoring for 17 hours?

$10(17) + 15$

185