



# THE KNOX SCHOOL

## Algebra I 2020 Summer Assignment

**Directions:** You must show all work, even for multiple choice. Any graphing problem should be done without a graphing calculator.

**Due Date:** First day of school! You will be held accountable for this material upon your return to school.

**No calculators! All work must be done by hand and shown on your assignment.**

1) Write the following in percent notation.

A. 0.12

B. 1.3

C.  $\frac{9}{10}$

D.  $\frac{3}{5}$

Write the following as simplified fractions.

A. 0.05

B. 6.25

C. 20%

D. 120%

2) Write an equation and solve:

A. 40% of 28 is what?

B. 20% of what number is 4?

3) Which is the greater fraction,  $\frac{15}{27}$  or  $\frac{24}{48}$ ? Explain your answer.

4) Perform the operations below. Write answers in simplified fractions.

A.  $16\frac{2}{3} - 9\frac{1}{5}$

B.  $5\frac{1}{3} * \frac{9}{10}$

C.  $4\frac{1}{2} \div 3$

5) Simplify the expressions:

A.  $95 - 5(7 - 3)^2$

B.  $9 + 2[3^2 + 2(5 - 3) + 6]$

6) Solve for x:

A.  $7x = 560$

B.  $x - 22 = -8$

C.  $\frac{3}{4}x = 18$

7) Mike bought  $\frac{1}{3}$  lb. orange tea and  $\frac{1}{2}$  lb. of English tea. How many total pounds of tea did he buy?

8) Marcus paid \$23.13 for 9 gallons of gas. Find the unit price per gallon, rounded to the nearest cent.

- 9) How much fence is required to enclose a rectangular piece of property whose length is 41 feet and width is 39 feet?
- 10) A pipe that is 34.8 cm is attached to another pipe that is 97.25 cm. What is the total length of the two pipes together?
- 11) If a bird can fly at 25 miles per hour, how far can it travel in  $4\frac{1}{2}$  hours?
- 12) Estimate the difference of 672 and 258 by **first** rounding to the nearest ten.
- 13) Jonathan received the following test scores in his math class: 72, 83, 85, 88, and 92. What is his mean score?
- 14) Determine if the ratios 3:5 and 7:10 create a proportion.
- 15) A team won 12 of the 18 games it played. What percent of its games did it win?

16) If your car averages 33 miles on a gallon of gas, how far can you travel with 16 gallons in your tank

Use the table below to answer question 17.

<b>City</b>	<b>Commuting time (in minutes)</b>
New York City	39.0
Los Angeles	28.1
Phoenix	24.7
Houston	25.9
Indianapolis	21.6
Chicago	33.1

17) What was the average commuting time for the six cities?

18) Sandy sold 12 cell phone contracts in 3 days. Write and solve a proportion to determine how many cell phone contracts Sandy should expect to sell in 21 days?

19) Label each number as rational or irrational:

a.  $\frac{1}{3}$       b.  $\sqrt{5}$       c.  $-32.\bar{9}$       d. 0.5      e.  $-\frac{8}{7}$

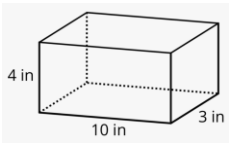
a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_ d. \_\_\_\_\_ e. \_\_\_\_\_

20) A man receives a bill for \$83.26 from Exxon. Of this amount, \$53.29 is for a tune-up and the rest is for gas. Write an equation and solve to determine how much he paid for gas.

21) David has a checking account balance of \$437.42. He overdraws his account by writing a check for \$602.58. Write his new balance as a negative number.

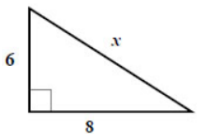
22) John paid \$260 for textbooks this term. Of this amount, the bookstore kept  $\frac{1}{4}$ . How much did the bookstore keep?

Use the rectangular prism below to answer question 23.



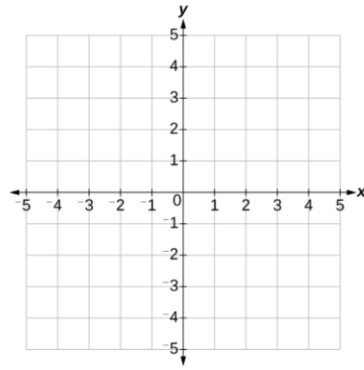
23) Find the volume and surface area of the cube.

Use the triangle below to answer question 24.



24) Solve for x in the triangle.

25) Identify the slope and y-intercept of the line  $y = \frac{1}{2}x - 3$ , and plot the line on the graph.



26) Simplify the following expressions:

a)  $3^2$       b)  $(-2)^3$       c)  $2^5$       d)  $\sqrt{36}$       e)  $-4^2$       f)  $8\sqrt{16}$

a) \_\_\_\_\_ b) \_\_\_\_\_ c) \_\_\_\_\_ d) \_\_\_\_\_ e) \_\_\_\_\_ f) \_\_\_\_\_