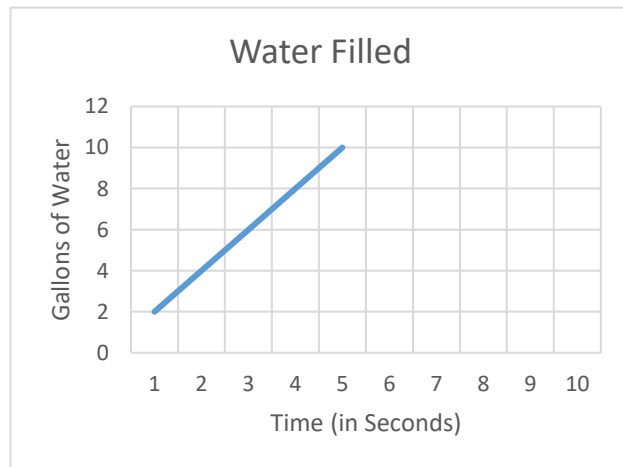


## Summer Math

Please use *white lined paper* for your answers and your work. Please copy the original problem and *box in your answer* if you should show your work. If you are asked to choose the answer, please write your choice on the white lined paper. **Please take the time to write your numbers or letters neatly on the lines of the paper.**

1. A student completes a 100-meter race in  $10\frac{2}{3}$  seconds. Express the speed as a unit rate. Show your work.

2. Does the graph show a proportional relationship? If so, what type of relationship?



3. Nariko surveys 40 families, asking whether they like to spend their vacation near the beach or in the mountains. A total of 30 families choose the beach.
  - a. Create a proportion that would predict how many families in a neighborhood of 300 families would prefer a vacation in *the mountains*.
  - b. Solve the proportion. Show the steps.
4. Dyani buys a backpacks for \$12.15, a notebook for \$4.51, and an eraser for \$0.30. If the sales tax is 3%, what is the total cost for the items? Show your work.
5. What is the simple interest rate, if the interest on \$675 borrowed for 2 years is \$83.70? Show your work.

6. Lydia buys furniture for \$2500 and sells it at a loss of 5.5%. What is the selling price?  
Show your work.
7. An account has a balance of – \$35.50. After a deposit, the new account balance is \$420.50. How much was the deposit?
8. Henry reads  $\frac{2}{3}$  of a book in 1 hour. At this rate, how much of the book does he read in  $\frac{4}{5}$  of an hour? Show your work.
9. Show your work to simplify:

$$7 - \frac{1}{2}x - \frac{1}{2} + 3x$$

10. Show your work to simplify this expression.

$$-2.9 + 2.1c + 3.8 - 0.82c$$

11. Matt is planning to buy six amusement park tickets that cost \$15 each. He already has \$50. He wants to save the same amount every day for 10 days. How much should he save every day?
- a. Which expression can be used to find the amount Matt should save every day?

a.  $\frac{6 \times 15 - 50}{10}$

b.  $\frac{6 \times (50 - 15)}{10}$

c.  $\frac{6 \times 15}{10}$

d.  $\frac{6 \times 15 + 50}{10}$

- b. How much should Matt save every day for 10 days? Show your work.

12. Divide. Show your work to express your answer in simplest form.

$$\frac{3}{16} \div -\left(\frac{5}{8}\right)$$

13. Show your work to simplify the expression when  $b = 4$ ,  $c = -\frac{2}{5}$ , and  $d = -\frac{3}{10}$

$$\frac{d}{c} \cdot b$$

14. Show your work to find the value of the expression  $\frac{d}{c} \cdot ab$  when  $a = \frac{1}{8}$ ,  $b = 4$ ,  $c = -\frac{2}{5}$ , and  $d = -\frac{3}{10}$ .

15. Divide. Show your work and express the quotient as a mixed number in simplest form.

$$\begin{array}{r} -41 \frac{2}{3} \\ \hline -7 \frac{1}{7} \end{array}$$

16. Show your work to simplify the expression.

$$-\frac{2}{5}(3g - 2) + \frac{1}{2}g - 2r + 7$$

17. Two friends are paying a restaurant bill of \$25.74. They agree to leave a 20% tip and split everything equally. How much does each friend pay in all? Show your work and round your answer to the nearest cent.

18. A utility company is installing a water main that passes under a busy intersection. The pipe is installed in two sections. One section of the pipe is 15 feet shorter than the other.

a. If  $\frac{2}{3}$  of the length of the longer pipe is 90 feet, which equation models this situation?

i.  $\frac{2}{3}(x + 15) = 90$

ii.  $(x + 15) = \frac{2}{3}(90)$

iii.  $\frac{2}{3}(x - 15) = 90$

b. Show your work to determine the length of the shorter pipe.

19. Express the following in standard form.

$$(2^3)^2$$

20. Which expressions are equivalent to the expression shown? Choose all that apply.

$$(2^2)^{-2}$$

a.  $\frac{1}{8}$

b.  $\frac{1}{16}$

c. 16

d.  $2^4$

e. 8

21. Simplify the expression:  $\frac{8^{-8}}{8^{-2}}$

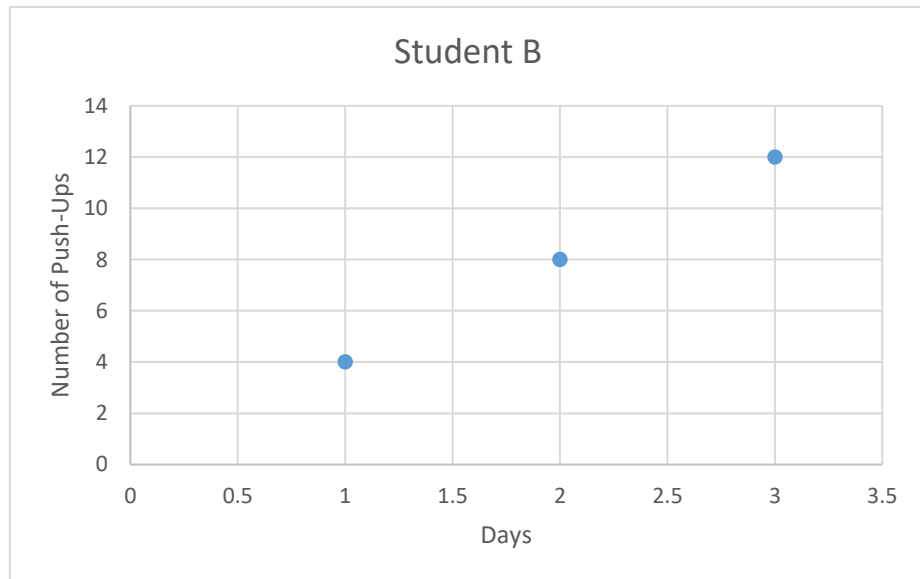
22. What is 0.789 written in scientific notation?

23. Express the product in scientific notation. Show the steps.

$$(5.8 \times 10^{-10}) (7.5 \times 10^7)$$

24. Two students decide to begin a fitness program, which includes keeping track of the number of push-ups they complete each day. One student tracks his progress using a table, the other student uses a fitness tracker to graph his data. Compare student A's progress with student B's progress. Explain your process using complete sentences.

Student A	
<b>d</b>	<b>p</b>
2	6
5	15
8	24



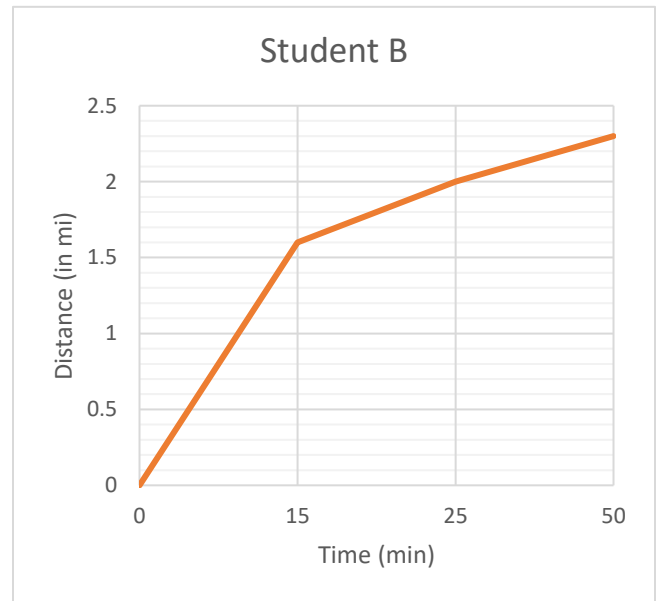
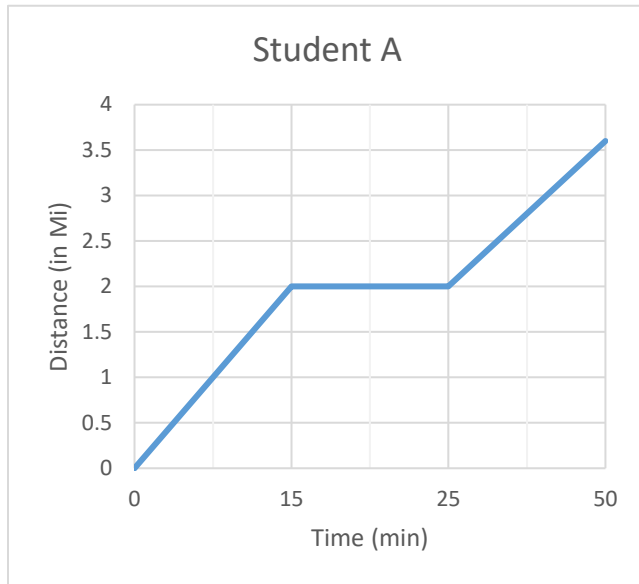
25. Solve for  $w$ . Show your steps.

$$-1.1w + 2 = -2 - 1.8w - 0.2$$

26. Complete the table for the function  $f(x) = -\frac{5}{2}x$ . Show your work.

<b>Input <math>x</math></b>	<b>Output <math>f(x)</math></b>
-2	?
-1	?
	0
1	$-\frac{2}{5}$
2	?

27. Two students are on the track team. The graphs show their runs from practice on Friday.
- Which statements are true? Choose all that apply.



- a. Student A stopped running for 10 minutes.
- b. Both students ran more than 4 miles.
- c. From 25 minutes to 50 minutes, Student B ran faster.
- d. Student B ran fewer miles than Student A.
- e. Student A ran faster than Student B for the first 15 minutes.

28. Determine the triangle's missing side length. Show your work.

