

Show all work for credit.

1. Evaluate the expression for the given values of  $x = 12$  and  $y = 3$ .

$$8 \cdot \frac{x}{y} = 8 \cdot \frac{12}{3} = 8 \cdot 4 = 32$$

2. Determine the formula that best models the data in the table.

x	2	3	4	5	6
y	6	9	12	15	18

$$y = 3x$$

3. Simplify.

$$\frac{21}{27} = \frac{3 \cdot 7}{3 \cdot 9} = \frac{7}{9}$$

4. Simplify.

$$\frac{13}{25} \cdot \frac{5}{26} = \frac{\cancel{13}^1}{\cancel{25}_5} \cdot \frac{\cancel{5}^1}{\cancel{26}_2} = \frac{1 \cdot 1}{5 \cdot 2} = \frac{1}{10}$$

5. Simplify.

$$\frac{10}{3} \div \frac{5}{9} = \frac{10}{3} \cdot \frac{9}{5} = \frac{\cancel{10}_2}{\cancel{3}_1} \cdot \frac{\cancel{9}^3}{\cancel{5}_1} = \frac{2 \cdot 3}{1 \cdot 1} = 6$$

Skip flip and mult.

6. Simplify.

$$\frac{1}{4} + \frac{3}{10} = \frac{1(5)}{4(5)} + \frac{3(2)}{10(2)} = \frac{5+6}{20} = \frac{11}{20}$$

7. Simplify.

$$\begin{array}{r} 3 \\ 36 \\ \times 6 \\ \hline 216 \end{array} \quad \begin{array}{r} 649 \\ \times 7 \\ \hline 343 \end{array}$$

$$\left(\frac{6}{7}\right)^3 = \frac{6 \cdot 6 \cdot 6}{7 \cdot 7 \cdot 7} = \frac{36 \cdot 6}{49 \cdot 7} = \frac{216}{343}$$

8. Simplify.

$$\frac{5}{8} - \frac{1}{4} = \frac{5}{8} - \frac{1(2)}{4(2)} = \frac{5-2}{8} = \frac{3}{8}$$

9. Simplify.

$$5.2 - 7.4 = \frac{7.4}{-5.2} = -2.2$$

10. Simplify

$$\begin{aligned} 3^2 - 9 \cdot 2 - (6 + 5 \cdot 2) &= \\ 9 - 9 \cdot 2 - (6 + 10) &= \\ 9 - 9 \cdot 2 - 16 &= \\ 9 - 18 - 16 &= \\ -9 - 16 &= \\ -25 & \end{aligned}$$

11. Simplify  $|-7| - 3 + |4| =$

$$\begin{array}{r} 7 - 3 + 4 \\ 4 + 4 \\ \hline 8 \end{array}$$

12. Simplify.  $4y - 6 + 5y - 7 =$

$$9y - 13$$

13. Write the fraction  $\frac{2}{5}$  as a decimal.

$$0.4$$

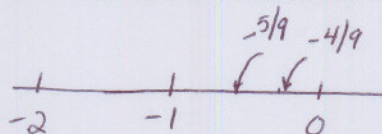
$$\begin{array}{r} 0.4 \\ 5 \overline{) 2.0} \\ \underline{-20} \\ 0 \end{array}$$

14. Write the decimal 0.5625 as a fraction.

$$\begin{aligned} 0.5625 &= \frac{5625}{10000} = \frac{\cancel{25}(225)}{\cancel{25}(400)} = \frac{225}{400} = \frac{\cancel{25}(9)}{\cancel{25}(16)} \\ &= \left(\frac{9}{16}\right) \end{aligned}$$

15. Insert the symbol  $>$  or  $<$  to make the statement true.

$$\frac{-4}{9} \left( > \right) \frac{-5}{9}$$



$$\begin{array}{r} -0.444 \\ 9 \overline{) -4.00} \\ \underline{-36} \\ 40 \end{array}$$

$$\begin{array}{r} -0.555 \\ 9 \overline{) -5.00} \\ \underline{-45} \\ 50 \end{array}$$

16. Use the commutative property to rewrite the expression. Do not simplify.

$$-4 + 7 = 7 - 4 \text{ or } 7 + -4$$

17. State what property must be used to simplify the given expression. Do not simplify.

$$\frac{5}{9}(x+y)$$

Distributive Property

18. Write the following English phrase as an algebraic expression. Then simplify. Let  $x$  represent the number.

"The difference between the product of seven and a number and twice the number."

$$7x - 2x = 5x$$

19. Kyle's credit card bill is \$397. Kyle sends a check to the credit card company for \$73, charges another \$141 in merchandise, and then pays another \$265 of the bill. How much does Kyle owe on the credit card? Show your work.

$$\begin{array}{r} 397 - 73 + 141 - 265 \\ 324 + 141 - 265 \\ 465 - 265 \\ \$ 200 \text{ remaining} \end{array}$$

20. Planet A has an average surface temperature of  $-110$  degrees Fahrenheit. Planet B has an average surface temperature that is  $\frac{5}{2}$  times that of Planet A. Find the average surface temperature on Planet B. Show your work.

$$\begin{array}{r} 255 \\ \times 5 \\ \hline 275 \end{array} \quad \begin{array}{r} 110 \\ \times 2.5 \\ \hline 550 \\ 2200 \\ \hline 2750 \end{array}$$

$$\frac{5}{2}(-110) = \frac{5}{2} \cdot \frac{-110}{1} = -275^\circ \text{F}$$

OR

$$2.5(-110) = -275^\circ \text{F}$$