

Name: _____ Date: _____

Key Equations Quiz Review

<p>1. $\frac{-3a}{-3} = \frac{39}{-3}$</p> <p style="text-align: center;">a = -13</p> <p>Check: $-3a = 39$ $-3(-13) = 39$ $39 = 39 \checkmark$</p>	<p>2. $\frac{-2.5x}{-2.5} = \frac{10}{-2.5}$</p> <p style="text-align: center;">x = -4</p> <p>Check: $-2.5x = 10$ $-2.5(-4) = 10$ $10 = 10 \checkmark$</p>	<p>3. $\frac{5}{2} \cdot \frac{2}{5} x = \frac{10}{1} \cdot \frac{5}{5}$</p> <p style="text-align: center;">x = 25</p> <p>Check: $\frac{2}{5} x = 10$ $\frac{2}{5}(25) = 10$ $\frac{50}{5} = 10$ $10 = 10 \checkmark$</p>
<p>4. $\frac{-x+8}{-1} = \frac{-15}{-1}$</p> <p style="text-align: center;">x = 23</p> <p>Check: $-x+8 = -15$ $-23+8 = -15$ $-15 = -15 \checkmark$</p>	<p>5. $\frac{3m+7}{3} = \frac{-8}{3}$</p> <p style="text-align: center;">m = -5</p> <p>Check: $3m+7 = -8$ $3(-5)+7 = -8$ $-15+7 = -8$ $-8 = -8 \checkmark$</p>	<p>6. $\frac{6-x}{-1} = \frac{24}{-1}$</p> <p style="text-align: center;">x = -18</p> <p>Check: $6-x = 24$ $6-(-18) = 24$ $6+18 = 24$ $24 = 24 \checkmark$</p>
<p>7. $\frac{15}{-3} = \frac{4a+3}{-3}$</p> <p style="text-align: center;">3 = 4a</p> <p>Check: $15 = 4a+3$ $15 = 4(3)+3$ $15 = 12+3$ $15 = 15 \checkmark$</p>	<p>8. $\frac{h}{-5} + 8.1 = 10.5$</p> <p style="text-align: center;">h = -12.0</p> <p>Check: $\frac{h}{-5} + 8.1 = 10.5$ $\frac{-12}{-5} + 8.1 = 10.5$ $2.4 + 8.1 = 10.5$ $10.5 = 10.5 \checkmark$</p>	<p>9. $\frac{4p-5.7}{4} = \frac{11.1}{4}$</p> <p style="text-align: center;">p = 4.2</p> <p>Check: $4p-5.7 = 11.1$ $4(4.2)-5.7 = 11.1$ $16.8-5.7 = 11.1$ $11.1 = 11.1 \checkmark$</p>

For the following word problems, (i) define the variable, (ii) set up an equation that represents the situation, (iii) solve the equation, (iv) answer the question. Show all work.

10. A book costs \$12.60 and magazines cost \$2.25 each. If you spend a total of \$23.85, how many magazines did you buy? Write an equation and solve.

$m = \# \text{ magazines}$

$$2.25m + 12.60 = 23.85$$

$$\frac{2.25m}{2.25} = \frac{11.25}{2.25}$$

m = 5

5 magazines were bought

11. Ethan planted a tree that is 37.5 inches tall. If the tree grows 3 inches per year, y , how long will it take for the tree to reach a height of 54 inches? Write an equation and solve.

$y = \# \text{ years}$

$$3y + 37.5 = 54.0$$

$$\frac{3y}{3} = \frac{16.5}{3}$$

y = 5.5

It will take 5.5 years

12. Translate into an equation and solve. Two times a number is increased by seven and the result is 93. Find the number.

$n = \text{a number}$

$$2n + 7 = 93$$

$$\frac{2n}{2} = \frac{86}{2}$$

n = 43

The number is 43

13. Sam went to CVS and bought some notepads and a magazine for \$5.00. If he spent a total of \$17.80 and each notepad cost \$3.20, how many notepads did he purchase?

$n = \# \text{ notepads}$

$$3.20n + 5.00 = 17.80$$

$$\frac{3.20n}{3.20} = \frac{12.80}{3.20}$$

n = 4

He bought 4 notepads

14. In August, Cory begins school shopping for his triplet daughters. One day, he bought 10 pairs of socks for \$2.50 each and 3 pairs of shoes for d dollars each. He spent a total of \$135.97. Find the cost of one pair of shoes.

$d = \text{cost of a pair of shoes}$

$$3d + 25.00 = 135.97$$

$$\frac{3d}{3} = \frac{110.97}{3}$$

d = 36.99

The shoes cost \$36.99

15. Jack said that the equation below can be solved using the division property of equality. Jill says that it should be solved using the multiplication property of equality. Whom do you agree with?

$$\frac{2}{3}x = 16$$

They are both correct because you can look at the equation as dividing both sides by $\frac{2}{3}$ or as multiplying both sides by the reciprocal.

16. Will rented a bike in Central Park for the afternoon. He was charged a rental fee of \$18 and \$5 per hour. If his bill totaled \$48, how many hours did he rent the bicycle?

$h = \# \text{ hours}$

$$\begin{array}{r} 5h + 18 = 48 \\ -18 \quad -18 \\ \hline 5h = 30 \\ \frac{5h}{5} = \frac{30}{5} \\ h = 6 \end{array}$$

He rented the bicycle for 6 hours

17. Error Analysis:

- a) Describe and correct the error in finding the solution.

$$\begin{array}{r} -6 + 2x = 10 \\ +6 \quad +6 \\ \hline 2x = 16 \\ \frac{2x}{2} = \frac{16}{2} \\ x = 8 \end{array}$$

$$-6 + 2x = 10$$

$$-6 + \frac{2x}{2} = \frac{10}{2}$$

$$-6 + x = 5$$

$$+6 \quad +6$$

$$x = 11$$

The student divided first but the student should have added first on both sides.

- b) How can the person who solved this equation determine that an error was made?

They could have checked the solution

$$-6 + 2x = 10$$

$$-6 + 2(8) = 10$$

$$-6 + 16 = 10$$

$$10 = 10 \checkmark$$