

1.3 Enrichment and Extension

Where can you buy a ruler that is three feet long?

Solve the equations. Order the solutions from least to greatest. Once ordered, the variables will spell the answer to the riddle.

1. $5d - 4 = 4 - d$

$$d = \frac{4}{3}$$

3. $15t + 17 = 13t + 14$

$$t = -1.5$$

5. $4a - 16 = a - 15$

$$a = \frac{1}{3}$$

7. $0.25r - 0.25 + 0.25r = 0.5 - 0.25r$

$$r = 1$$

9. $13s - 31 = 2s - 9$

$$s = 2$$

11. $3l + 4 + l = 13 + l$

$$l = 3$$

2. $-10e + 15 = 95 - 30e$

$$e = 4$$

4. $-12 - a = 4a - 7$

$$a = -1$$

6. $4y + 12 = 6y + 12$

$$y = 0$$

8. $-4a + 7 = a + 32$

$$a = -5$$

10. $a + 1.25 = 2a - 1$

$$a = 2.25$$

Solution													
Variable													

IT'S TOAD AWAY

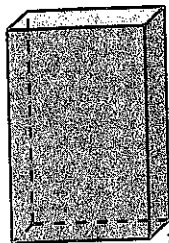
1.3

Practice B

Surface area = area of each face added together
 volume = length x width x depth

The value of the solid's surface area is equal to the value of the solid's volume. Find the value of x .

1.



$x = 15$

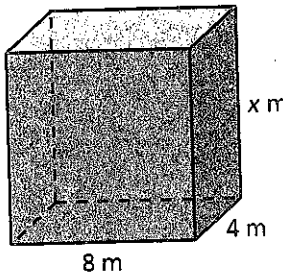
$$30 + 30 + 3x + 3x + 10x + 10x =$$

$$30x$$

$$60 + 26x = 30x$$

$$4x = 60$$

2.



$$32 + 32 + 4x + 4x + 8x + 8x$$

$$64 + 24x = 32x$$

$$8x = 64$$

$x = 8$

Solve the equation. Check your solution.

3. $5y - 14 = 2y - 2$ $y = 4$

4. $\frac{4}{7}m = 18 - \frac{2}{7}m$ $m = 21$

5. $16(p - 2) = 7p + 4$ $p = 4$

6. $4(2s - 3) = 3(s + 1)$ $s = 3$

7. $0.3(t - 2) = 0.4t$ $t = -6$

8. $\frac{2}{9}n + \frac{1}{2} = \frac{2}{3}(n + 3)$ $n = -\frac{27}{8}$

9. Describe and correct the error in solving the equation.

X $0.4x = 0.2(x - 8)$
 $0.4x = 0.2x - 8$
 $0.2x = -8$
 $x = -40$

← didn't distribute 0.2 to both terms

Solve the equation.

10. $4.2x - 3 = 0.5(8.4x + 6)$
 no solution

11. $\frac{2}{3}x + 1 = \frac{2}{3}x - 1$
 no solution

12. $1.5(6 - 2x) = 3x - 9$
 $x = 3$

13. $\frac{1}{2}x - 5 = \frac{3}{2}x - 5$ $x = 0$

14. $-3(x + 5) = -(3x + 15)$
 infinitely many

15. $-\frac{1}{2}x + 1\frac{1}{2} = \frac{1}{2}(3 - x)$
 infinitely many

16. The original price p for a necklace is the same at both jewelry stores. At Store A, the sale price is 60% of the original price. Last month, at Store B the sale price was \$40 less than the original price. This month, Store B is selling the necklace for 80% of last month's reduced price. The current sale prices are the same for both stores. Write and solve an equation to find the original price of the necklace.

$0.6p = 0.8(p - 40)$
 $\$160$

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Teacher : _____ Date : _____

Solve the Equations

$$1) \frac{-5.5k}{-5.5} = \frac{-44}{-5.5}$$

$$k = 8$$

$$6) -5 = 2.9 + c$$
$$\frac{-5}{-2.9} = \frac{2.9 + c}{-2.9}$$

$$c = -7.9$$

$$2) \begin{array}{r} b - 2.5 = 3.8 \\ +2.5 \quad +2.5 \\ \hline b = 6.3 \end{array}$$

$$7) \frac{31.8}{-5.3} = \frac{-5.3d}{-5.3}$$

$$d = -6$$

$$3) \frac{f}{9} = -6.5$$

$$f = -58.5$$

$$8) 6.9 = \frac{n}{7}$$

$$n = 48.3$$

$$4) \begin{array}{r} -5.7 = x + 2.1 \\ -2.1 \quad -2.1 \\ \hline -7.8 = x \end{array}$$

$$9) \frac{4.6z}{4.6} = \frac{-59.8}{4.6}$$

$$z = -13$$

$$5) -12 = 4.5 + v$$
$$\frac{-12}{-4.5} = \frac{4.5 + v}{-4.5}$$

$$v = -16.5$$

$$10) \frac{-35.4}{5.9} = \frac{5.9y}{5.9}$$

$$y = -6$$



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Solve the Equations

Round your answers to the nearest hundredth if needed.

$$1) 6 \cdot \frac{v-14}{6} = -9 \cdot 6$$

$$\begin{array}{r} v-14 = -54 \\ +14 \quad +14 \\ \hline v = -40 \end{array}$$

$$6) -21 + \frac{5}{6}n = 7$$
$$\begin{array}{r} +21 \quad +21 \end{array}$$

$$\frac{5}{6}n = 28 \cdot \frac{6}{5}$$
$$n = 33.6 \text{ or } \frac{168}{5}$$

$$2) \frac{26+b}{23} = 19 \cdot 23$$

$$\begin{array}{r} 26+b = 437 \\ -26 \quad -26 \\ \hline b = 411 \end{array}$$

$$7) \frac{c+29}{-9} = 25 \cdot -9$$

$$\begin{array}{r} c+29 = -225 \\ -29 \quad -29 \\ \hline c = -254 \end{array}$$

$$3) \frac{29+a}{-23} = 27 \cdot -23$$

$$\begin{array}{r} 29+a = -621 \\ -29 \quad -29 \\ \hline a = -650 \end{array}$$

$$8) \frac{2-r}{-11} = 15 \cdot -11$$

$$\begin{array}{r} 2-r = -165 \\ -2 \quad -2 \\ \hline -r = -167 \\ r = 167 \end{array}$$

$$4) \frac{h+3}{28} = 16 \cdot 28$$

$$\begin{array}{r} h+3 = 448 \\ \hline h = 445 \end{array}$$

$$9) \frac{20-f}{19} = 22 \cdot 19$$

$$\begin{array}{r} 20-f = 418 \\ -20 \quad -20 \\ \hline -f = 398 \\ f = -398 \end{array}$$

$$5) 15x + 8 = 24$$
$$\begin{array}{r} -8 \quad -8 \end{array}$$

$$\begin{array}{r} 15x = 16 \\ \hline x = \frac{16}{15} \end{array}$$

$$10) \frac{5}{9}y + 13 = 15$$
$$\begin{array}{r} -13 \quad -13 \end{array}$$

$$\frac{5}{9}y = 2 \cdot \frac{9}{5} \quad y = \frac{18}{5}$$

