135 day 4

February 11, 2015

1. Solve for x:
   
   \[16 + x = y\]
   \[-16\]
   \[x = y - 16\]

2. \[M = \frac{m}{\text{min}}\]

3. \[m \times \frac{\text{min}}{m} = \text{min}\]

4. \(\frac{M}{m}\)

5. 11.2 meters

6. 7 meters per minute

7. \(m = 11.2\)

8. \(t\)

9. \(\text{min} m = 1.6\)
11. A Web music store offers two versions of a popular song. The size of the standard version is 2.2 megabytes (MB). The size of the high-quality version is 4.8 MB. Yesterday, there were 1050 downloads of the song, for a total download size of 4000 MB. How many downloads of the high-quality version were there?
#8. Solve for "w" 

\[ A = 5w \]

\[ w = \frac{A}{5} \]

-isolate w by dividing by 5

9. Three consecutive integers have a sum of 75. What are the integers?

\[ 24 + 25 + 26 = 75 \]

\[ x + (x+1) + (x+2) = 75 \]

\[ 3x + 3 = 75 \]

\[ 3x = 72 \]

\[ x = 24 \]
Solve for $x$

$w = \frac{1}{6} (x + y - z)$

$-w = \frac{1}{6} x + \frac{1}{6} y - \frac{1}{6} z$

$\frac{1}{6} x = \frac{1}{6} y - \frac{1}{6} z - w$

$x = \frac{1}{6} y - \frac{1}{6} z - w$

$w = x + y + z$

$-w = -y - z$

$y - z = x$
# 8
a = B - 6
b = 18
c = 418

\[
\frac{b - 6 + 4b}{16} = \frac{15b + 4B}{90} \Rightarrow 6b = 90 \\
B = 6
\]

\[
a = B - 6 \\
a = 18 - 6 \\
a = 12
\]

\[
b = 16
\]

\[
c = 4B \\
c = 4(16) \\
c = 64
\]
#8

\[
\begin{align*}
& a = B - 6 \\
& b = B \\
& c = 4B \\
& B - B + B + 4B = 90 \\
& a + b + c = 90 \\
& \frac{4B}{2} + B + 4B = a + b + c \\
& 6B = 90 \\
& B = 15 \\
& a = B - 6 \\
& a = 15 - 6 \\
& a = 9 \\
& b = B \\
& b = 15 \\
& c = 4B \\
& c = 4(15) \\
& c = 60 \\
& 10 + 15 + 60 = 90 \\
\end{align*}
\]
5) Solve for y,
\[ x(5y) = y \]

\[ 5y = \frac{x}{5} \]

\[ y = \frac{x}{5} \]

\[ x = 5y \]
\[ p_r(s) = \left( \frac{r}{P} + \frac{s}{r} \right) p_r \]

\[ s_{pr} = r + s_{pr} - \frac{r}{B} \]

\[ s_{pr} - 5p = 9r \]

\[ p \left( s_{r-s} \right) = \frac{9r}{s_{r-s}} \]

\[ p = \frac{9r}{s_{r-s}} \]
16. A chemist mixes 50 milliliters of a solution that is 20% acid with 75 milliliters of a solution that is 45% acid.

Answer the questions below. Do not do any rounding.

(a) How many milliliters of acid are in the resulting mixture?

(b) What percentage of the resulting mixture is acid?

Solution:

(a) $50 \text{ mL} \cdot 20\% = 10 \text{ mL}$ acid

(b) $75 \text{ mL} \cdot 45\% = 33.75 \text{ mL}$ acid

Total volume = $10 + 33.75 = 43.75 \text{ mL}$

$\frac{125 \text{ mL} \cdot x}{125} = 43.75$

$x = \frac{43.75}{125} = 0.35$

$35\%$
19. Graph the set \( \{ x \mid -2 \leq x < 3 \} \) on the number line.

Then, write the set using interval notation.
Solve for $F$

\[ h = \frac{k-g}{F-t} \]

\[ k(F-t) = k-g \]

\[ k \cdot F - k \cdot t = k - g \]

\[ F - t = \frac{k-g}{k} + \frac{n}{t} \]

\[ F = \frac{k-g}{n} + t \]
18

$400 \times 4\% \times 0.04 \times 5 = 80$

$0.04 \times 400 = 16$

$16 \times 5 \text{ yrs} = 80$
Two different tanks
Find A \times \% \text{ of } 8000
Find B \times \% \text{ of } 8000
Tank A = \text{ 7.04 } \% \text{ of } 8000
\text{in tank A, 70.4000 = 8000} + x
\frac{x}{8000} = 0.04
x = 0.04(8000 + x)

800 + 0.03x = 0.07(8000 + x)
800 + 0.03x = 560 + 0.04x
-560 - 0.03x = -560 - 0.03x
240 = 0.04x
240 = 0.04x
\frac{240}{0.04} = x
6000 = x
15. The price of an item has dropped to $69 today. Yesterday it was $115. Find the percentage decrease.

\[
\frac{46}{115} = 0.4 = 40\% = 46
\]

\[
\begin{array}{c}
115 \\
- 69 \\
\hline
46
\end{array}
\]
20. \[ C = \{ x \mid x > 3 \} \]
\[ D = \{ x \mid x \leq 6 \} \]
\[ C \cap D = (3, 6] \]
\[ C \cup D = (-\infty, \infty) \]
2. \( y + \frac{1}{4} \leq \frac{3}{4} \)

\[ y \leq \frac{3}{4} - \frac{1}{4} \]

\[ y \leq \frac{1}{2} \]

\[ y \geq -\frac{3}{2} + 2 \]

\[ y \geq -\frac{1}{2} \]