4.2 Practice  | Rearranging formulas to solve for a variable (N.Q.1, N.Q.2, A.REI.3, A.CED.4)

High School Math 1
Mathematics Vision Project

Topic: Isolate a variable with inverse operations

Isolate the indicated variable in JUST ONE STEP. Then fill in the blank for the statement that follows.

1. Solve for $x; \ ax = 7$ I can find $1x$ or $x$ by __________________ on both sides of the equation.
2. Solve for $p; \ 8 + p = w$ I can find $1p$ or $p$ by __________________ on both sides of the equation.
3. Solve for $m; \ e = mc^2$ I can find $1m$ or $m$ by __________________ on both sides of the equation.
4. Solve for $t; \ d = rt$ I can find $1t$ or $t$ by __________________ on both sides of the equation.
5. Solve for $r; \ d = rt$ I can find $r$ by __________________ on both sides of the equation.
6. Solve for $h; \ 7 - h = 0$ I can find $h$ by __________________ on both sides of the equation.
7. Solve for $b; \ b - 11 = 3$ I can find $b$ by __________________ on both sides of the equation.
8. Solve for $y; \ \frac{1}{2}y = k$ I can find $y$ by __________________ on both sides of the equation.
9. Solve for $h; \ A = \frac{bh}{2}$ I can find $h$ by __________________ on both sides of the equation.
10. Solve for $x; \ y = mx + b$ I can find $x$ by __________________ on both sides of the equation.

Topic: Defining and interpreting variables and units of measure

Jaxon likes to be organized, so he made the following chart. He has decided to keep track of the miles he runs and the time he spends running. He attends P.E. class on Monday, Wednesday, and Friday, but he goes to school every day. Fill in the Units column on the chart.

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>MEANING (description of what the symbol means in context)</th>
<th>UNITS (what is counted or measured)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M$</td>
<td>Number of miles ran in PE class on Mondays</td>
<td></td>
</tr>
<tr>
<td>$W$</td>
<td>Number of miles ran in PE class on Wednesdays</td>
<td></td>
</tr>
<tr>
<td>$F$</td>
<td>Number of miles ran in PE class on Fridays</td>
<td></td>
</tr>
<tr>
<td>$S$</td>
<td>Number of miles from Jaxon’s house to the school</td>
<td></td>
</tr>
<tr>
<td>$H$</td>
<td>Time (in hours) to travel to schools</td>
<td></td>
</tr>
<tr>
<td>$t_M$</td>
<td>Time (in minutes) spent running in PE on Monday</td>
<td></td>
</tr>
<tr>
<td>$t_W$</td>
<td>Time (in minutes) spent running in PE on Wednesday</td>
<td></td>
</tr>
<tr>
<td>$t_F$</td>
<td>Time (in minutes) spent running in PE on Friday</td>
<td></td>
</tr>
</tbody>
</table>

Make meaning of each expression below by writing their meaning. If an expression does not make sense, say why.

11. $M + W + F$  
12. $4(M + W + F)$  
13. $2S$

14. $\frac{t_M + t_W + t_F}{3}$  
15. $5(2H)$  
16. $M + H$
**Topic:** Set notation to interval notation/Inequalities on a number line.

Below you will find the domains of several different functions. The domains are described in either set notation or interval notation. Fill in the missing notation.

<table>
<thead>
<tr>
<th>SET NOTATION</th>
<th>INTERVAL NOTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>17. (-2 &lt; x &lt; 6)</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>([-4, 7])</td>
</tr>
<tr>
<td>19. (x \geq -9)</td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>((0, 13])</td>
</tr>
<tr>
<td>21. (-15 \leq x \leq -8)</td>
<td>([-32, -15])</td>
</tr>
<tr>
<td>22.</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>((-\infty, \infty))</td>
</tr>
</tbody>
</table>

24. Which notation, interval or set, would most appropriate when working with a domain of whole numbers (the whole numbers are the *counting numbers* and the *number 0*).

For each of the inequalities provided graph the values being described on the numbers line.

<table>
<thead>
<tr>
<th>INEQUALITY</th>
<th>GRAPH</th>
</tr>
</thead>
</table>
| 25. \(x < 6\) | \[
\begin{array}{c}
\text{---} \\
\end{array}\]
| 26. \(x > 5\) | \[
\begin{array}{c}
\text{---} \\
\end{array}\]
| 27. \(x \geq -9\) | \[
\begin{array}{c}
\text{---} \\
\end{array}\]
| 28. \(-7 \leq x < 0\) | \[
\begin{array}{c}
\text{---} \\
\end{array}\]
| 29. \(3 \leq x \leq 24\) | \[
\begin{array}{c}
\text{---} \\
\end{array}\]
| 30. \(-15 < x \leq 8\) | \[
\begin{array}{c}
\text{---} \\
\end{array}\]