

Unit 2: Equations and Inequalities
PRE-TEST

64 pts

Solve each equation:

<p>1. $-13 = x - 5$ $\begin{array}{r} +5 \\ \hline -8 = x \end{array}$</p>	<p>2. $r + 3 = 19$ $\begin{array}{r} -3 \\ \hline r = 16 \end{array}$</p>
<p>3. $-9x = -63$ $\begin{array}{r} -9 \\ \hline x = 7 \end{array}$</p>	<p>4. $\left[\frac{b}{13} = 7\right] \cdot 13$ $b = 91$</p>
<p>5. $\left[\frac{x+6}{14} = -1\right] \cdot 14$ $\begin{array}{r} x + 6 = -14 \\ -6 \quad -6 \\ \hline x = -20 \end{array}$</p>	<p>6. $10(-4 + n) = -140$ $\begin{array}{r} -40 + 10n = -140 \\ +40 \quad +40 \\ \hline 10n = -100 \\ \frac{10n}{10} = \frac{-100}{10} \\ n = -10 \end{array}$</p>
<p>7. $9 - 2k = 49$ $\begin{array}{r} -9 \\ \hline -2k = 40 \\ -2 \quad -2 \\ \hline k = -20 \end{array}$</p>	<p>8. $35 = -5(1 + b)$ $\begin{array}{r} 35 = -5 - 5b \\ +5 \quad +5 \\ \hline 40 = -5b \\ \frac{40}{-5} = \frac{-5b}{-5} \end{array}$ $-8 = b$</p>
<p>9. $6(2a - 5) = -90$ $\begin{array}{r} 12a - 30 = -90 \\ +30 \quad +30 \\ \hline 12a = -60 \\ \frac{12a}{12} = \frac{-60}{12} \\ a = -5 \end{array}$</p>	<p>10. $7 - 3(a - 3) = 4(2 - a)$ $\begin{array}{r} 7 - 3a + 9 = 8 - 4a \\ -3a + 16 = 8 - 4a \\ +4a \quad -16 \quad -16 + 4a \\ \hline a = -8 \end{array}$</p>
<p>11. $\left[\frac{k+8}{6} = 3\right] \cdot 6$ $k+8 = 18$ $\begin{array}{r} k + 8 = 18 \\ -8 \quad -8 \\ \hline k = 10 \end{array}$ $\begin{array}{r} k + 8 = -18 \\ -8 \quad -8 \\ \hline k = -26 \end{array}$</p>	<p>12. $6 + 10 n + 1 = 96$ $\begin{array}{r} 10 n+1 = 90 \\ \frac{10 n+1 }{10} = \frac{90}{10} \\ n+1 = 9 \\ \begin{array}{l} n+1 = 9 \\ -1 \quad -1 \\ \hline n = 8 \end{array} \quad \begin{array}{l} n+1 = -9 \\ -1 \quad -1 \\ \hline n = -10 \end{array} \end{array}$</p>

2 pts Each

4 pts

4 pts

28 pts

Solve each equation for the indicated variable:

2 pts Each

<p>13. $z = m + a - b$, for a</p> $\begin{array}{r} +b \\ \hline b + z = m + a \\ -m \end{array}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $-m + b + z = a$ </div>	<p>14. $k - a = w - v$, for a</p> $\begin{array}{r} -k \\ \hline -a = \frac{w}{-1} - \frac{v}{-1} - \frac{k}{-1} \end{array}$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> $a = -w + v + k$ </div>
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Solve each inequality and graph its solution on the number line provided:

4 pts Each

<p>15. $-31 < n - 17$</p> $\begin{array}{r} +17 \quad +17 \\ \hline -14 < n \end{array} \quad \text{OR} \quad n > -14$	<p>16. $x - 14 \geq -23$</p> $\begin{array}{r} +14 \quad +14 \\ \hline x \geq -9 \end{array}$
<p>17. $-20 < \frac{k}{13} \cdot 13$</p> $-260 < k \quad \text{OR} \quad k > -260$	<p>18. $-5x \leq \frac{-100}{-5}$</p> $x \geq 20$
<p>19. $-10 + \frac{p}{10} \leq -8$</p> $\begin{array}{r} +10 \quad +10 \\ \hline 10 \left[\frac{p}{10} \leq 2 \right] 10 \\ p \leq 20 \end{array}$	<p>20. $-10 + 10p > 110$</p> $\begin{array}{r} +10 \quad +10 \\ \hline \frac{10p}{10} > \frac{120}{10} \\ p > 12 \end{array}$
<p>21. $163 < 3(-8n - 2) + 1$</p> $\begin{array}{r} -1 \quad -1 \\ \hline 162 < -24n - 6 \\ +6 \quad +6 \\ \hline 168 < -24n \\ -24 \quad -24 \\ \hline -7 > n \end{array} \quad \text{OR} \quad n < -7$	<p>22. $-3 + 2(1 + 7b) \leq 7(b - 7) + b$</p> $\begin{array}{r} -3 + 2 + 14b \leq 7b - 49 + b \\ -1 + 14b \leq 8b - 49 \\ +1 \quad -8b \quad -8b \quad +1 \\ \hline 6b \leq -48 \\ \hline b \leq -8 \end{array}$

36 pts