

# Worksheet

05/15/2020

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Problem quickname: 3102

1)

Quick:  
3102

Solve the equation: Determine the value of the variable. Combine like terms and perform equivalent transformations.

$$\begin{array}{l|l}
 \text{a) } 10(q + 9) - 370 = 7q + 2 & \text{expand/multiply out parenthesis} \\
 10q + 90 - 370 = 7q + 2 & \text{rearrange and combine like terms} \\
 10q - 280 = 7q + 2 & +280 \\
 10q = 7q + 282 & -7q \\
 3q = 282 & | : 3 \\
 q = 94 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{b) } 9(r + 11) - 244 = 2r - 5 & \text{expand/multiply out parenthesis} \\
 9r + 99 - 244 = 2r - 5 & \text{rearrange and combine like terms} \\
 9r - 145 = 2r - 5 & +145 \\
 9r = 2r + 140 & -2r \\
 7r = 140 & | : 7 \\
 r = 20 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{c) } 11(n + 3) - 329 = 2n + 5n & \text{expand/multiply out parenthesis} \\
 11n + 33 - 329 = 2n + 5n & \text{rearrange and combine like terms} \\
 11n - 296 = 7n & +296 \\
 11n = 7n + 296 & -7n \\
 4n = 296 & | : 4 \\
 n = 74 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{d) } 7(p + 11) + 3p = 203 + 4p & \text{expand/multiply out parenthesis} \\
 7p + 77 + 3p = 203 + 4p & \text{rearrange and combine like terms} \\
 10p + 77 = 4p + 203 & -77 \\
 10p = 4p + 126 & -4p \\
 6p = 126 & | : 6 \\
 p = 21 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{e) } 9(e + 7) - 4e = 195 - e & \text{expand/multiply out parenthesis} \\
 9e + 63 - 4e = 195 - e & \text{rearrange and combine like terms} \\
 5e + 63 = -e + 195 & -63 \\
 5e = -e + 132 & +e \\
 6e = 132 & | : 6 \\
 e = 22 & 
 \end{array}$$

2)

Quick:  
3102

Solve the equation: Determine the value of the variable x. Combine like terms and

perform equivalent transformations.

$$\begin{array}{l|l}
 \text{a) } 11(x+1) - 7x - 3x = 149 - 5x & \text{expand/multiply out parenthesis} \\
 11x + 11 - 7x - 3x = 149 - 5x & \text{rearrange and combine like terms} \\
 x + 11 = -5x + 149 & -11 \\
 x = -5x + 138 & +5x \\
 6x = 138 & | : 6 \\
 x = 23 &
 \end{array}$$

$$\begin{array}{l|l}
 \text{b) } 10(x+8) + 4 = 4x + 134 + 4 & \text{expand/multiply out parenthesis} \\
 10x + 80 + 4 = 4x + 134 + 4 & \text{rearrange and combine like terms} \\
 10x + 84 = 4x + 138 & -84 \\
 10x = 4x + 54 & -4x \\
 6x = 54 & | : 6 \\
 x = 9 &
 \end{array}$$

$$\begin{array}{l|l}
 \text{c) } 10(x+5) + 3 = 5x + 420 + 3 & \text{expand/multiply out parenthesis} \\
 10x + 50 + 3 = 5x + 420 + 3 & \text{rearrange and combine like terms} \\
 10x + 53 = 5x + 423 & -53 \\
 10x = 5x + 370 & -5x \\
 5x = 370 & | : 5 \\
 x = 74 &
 \end{array}$$

$$\begin{array}{l|l}
 \text{d) } 11(x+4) - 244 + 1 = 6x - 4 & \text{expand/multiply out parenthesis} \\
 11x + 44 - 244 + 1 = 6x - 4 & \text{rearrange and combine like terms} \\
 11x - 199 = 6x - 4 & +199 \\
 11x = 6x + 195 & -6x \\
 5x = 195 & | : 5 \\
 x = 39 &
 \end{array}$$

$$\begin{array}{l|l}
 \text{e) } 8(x+7) + 4x - x = 7x + 176 & \text{expand/multiply out parenthesis} \\
 8x + 56 + 4x - x = 7x + 176 & \text{rearrange and combine like terms} \\
 11x + 56 = 7x + 176 & -56 \\
 11x = 7x + 120 & -7x \\
 4x = 120 & | : 4 \\
 x = 30 &
 \end{array}$$

3)

Solve the equation: Determine the value of the variable. Combine like terms and perform equivalent transformations.

$$\begin{array}{l|l}
 \text{a) } 9(v+10) - 333 = 4v - 5 + 2 & \text{expand/multiply out parenthesis} \\
 9v + 90 - 333 = 4v - 5 + 2 & \text{rearrange and combine like terms} \\
 9v - 243 = 4v - 3 & +243 \\
 9v = 4v + 240 & -4v \\
 5v = 240 & | : 5 \\
 v = 48 &
 \end{array}$$

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$$\begin{array}{l|l}
 \text{b) } 10(c+1) - c - 150 = 4c + 5 & \text{expand/multiply out paranthesis} \\
 10c + 10 - c - 150 = 4c + 5 & \text{rearrange and combine like terms} \\
 9c - 140 = 4c + 5 & +140 \\
 9c = 4c + 145 & -4c \\
 5c = 145 & : 5 \\
 c = 29 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{c) } 8(s+5) - 98 = 4s + 1 + 1 & \text{expand/multiply out paranthesis} \\
 8s + 40 - 98 = 4s + 1 + 1 & \text{rearrange and combine like terms} \\
 8s - 58 = 4s + 2 & +58 \\
 8s = 4s + 60 & -4s \\
 4s = 60 & : 4 \\
 s = 15 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{d) } 11(g+4) + 2g = 8g + 114 - 5 & \text{expand/multiply out paranthesis} \\
 11g + 44 + 2g = 8g + 114 - 5 & \text{rearrange and combine like terms} \\
 13g + 44 = 8g + 109 & -44 \\
 13g = 8g + 65 & -8g \\
 5g = 65 & : 5 \\
 g = 13 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{e) } 10(f+5) + 4f = 9f + 317 - 2 & \text{expand/multiply out paranthesis} \\
 10f + 50 + 4f = 9f + 317 - 2 & \text{rearrange and combine like terms} \\
 14f + 50 = 9f + 315 & -50 \\
 14f = 9f + 265 & -9f \\
 5f = 265 & : 5 \\
 f = 53 & 
 \end{array}$$

4)

Solve the equation: Determine the value of the variable. Combine like terms and perform equivalent transformations.

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$$\begin{array}{l|l}
 \text{a) } -176 + 3u + 8(u+4) = -2u + 3u + 6u & \text{expand/multiply out paranthesis} \\
 -176 + 3u + 8u + 32 = -2u + 3u + 6u & \text{rearrange and combine like terms} \\
 11u - 144 = 7u & +144 \\
 11u = 7u + 144 & -7u \\
 4u = 144 & : 4 \\
 u = 36 & 
 \end{array}$$

$$\begin{array}{l|l}
 \text{b) } 4 + 11(h+9) = 3h + 341 - 2 + 4h & \text{expand/multiply out paranthesis} \\
 4 + 11h + 99 = 3h + 341 - 2 + 4h & \text{rearrange and combine like terms} \\
 11h + 103 = 7h + 339 & -103 \\
 11h = 7h + 236 & -7h \\
 4h = 236 & : 4 \\
 h = 59 & 
 \end{array}$$

Solutions to smp-3102-1/BKLM

c)	$-356 + 2q + 5 + 9(q + 7) = 8q + 9$	expand/multiply out paranthesis
	$-356 + 2q + 5 + 9q + 63 = 8q + 9$	rearrange and combine like terms
	$11q - 288 = 8q + 9$	+288
	$11q = 8q + 297$	-8q
	$3q = 297$	: 3
	$q = 99$	
d)	$-k + 4 + 10(k + 1) = -2k + 302 + 2k$	expand/multiply out paranthesis
	$-k + 4 + 10k + 10 = -2k + 302 + 2k$	rearrange and combine like terms
	$9k + 14 = 302$	-14
	$9k = 288$	: 9
	$k = 32$	
e)	$-3 - 280 + 4 + 7(z + 1) = 4z - 5$	expand/multiply out paranthesis
	$-3 - 280 + 4 + 7z + 7 = 4z - 5$	rearrange and combine like terms
	$7z - 272 = 4z - 5$	+272
	$7z = 4z + 267$	-4z
	$3z = 267$	: 3
	$z = 89$	

Good Luck!