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| **WARM UP**Each bag contains the **same number** of gold coins. **Determine** how many coins are in each bag algebraically. Let “x” represent each bag and each coin will have a value of one.  |

**SOLVING EQUATIONS WITH VARIABLES ON BOTH SIDES**

**Steps:**

1. Apply distributive law
2. Simplify each side by collecting like terms
3. Eliminate variables from right side or left side by adding or subtracting
4. solve for x

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| **Teacher** | **Your Turn** |
| $$ 8x+8=2x-4$$ | a) $ 5x+3=2x+33$ | b) $7x^{2}-15=29-4x^{2}$ |
| $$2\left(5x+4\right)=3(x-2)$$ | a) $ 4\left(2x+1\right)=3(2x+2)$ | b) $5\left(x-8\right)=2\left(x-1\right)+\left(4x+5\right)$ |

**PRACTICE**

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| a. 5(x + 4) = 3x + 14 | b. 5q – 6 = 2(q + 3) | c. 4t + 3(2 – t) = 13 |
| d. u = 3(5 – u) + 1  | e. 3(r + 4) + 2(r + 5) = 32 | f. 5(y – 3) – 3(y – 4) = 15 |
| g. 4(v + 3) = 2(v + 6) – 8  | h. 2(y – 4) = -3(y + 2) + 8 | i. 6(3w + 4) = 10(2w – 1) |
| j. 4(m + 3) + 2(m – 3) = 3(m – 2)  | k. p – (4p + 3) = -3(p + 2) – (2p + 3) |
| l. Bilbo solved the following equation. He is incorrect. **Circle** his mistakes and **explain** why he is incorrect. |
| ANSWERS: a) x=-3, b) q=4, c) t=7, d) u=4, e) r=2, f) y=7.5, g) v=-4, h) y=2, i) w=17, j) m=-4, k) p=-2, l) 2nd line: just dropped the brackets for both polynomials. Should have 3x+15 – x – 4, AND 5th line + 9 (should have subtracted 9). |