

$$\begin{aligned}
 1a.) \quad & 3 + 12 \cdot 5 \div (13 - 7) \\
 & 3 + 12 \cdot 5 \div 6 \\
 & 3 + 60 \div 6 \\
 & 3 + 10 \\
 & \boxed{= 13}
 \end{aligned}$$

$$\begin{aligned}
 1b.) \quad & 9 \cdot 3 + 8 \div 2 - (17 + 8) \\
 & 9 \cdot 3 + 8 \div 2 - 25 \\
 & 27 + 8 \div 2 - 25 \\
 & 27 + 4 - 25 \\
 & 31 - 25 \\
 & \boxed{= 6}
 \end{aligned}$$

$$\begin{aligned}
 1c.) \quad & 3(16 - 9) + 14 \div 7 \\
 & 3(7) + 14 \div 7 \\
 & 21 + 14 \div 7 \\
 & 21 + 2 \\
 & \boxed{= 23}
 \end{aligned}$$

$$\begin{aligned}
 1d.) \quad & 4 \cdot 45 \div (27 - 8 \cdot 3)^2 - 10 \\
 & 4 \cdot 45 \div (27 - 24)^2 - 10 \\
 & 4 \cdot 45 \div (3)^2 - 10 \\
 & 4 \cdot 45 \div 9 - 10 \\
 & 180 \div 9 - 10 \\
 & 20 - 10 \\
 & \boxed{= 10}
 \end{aligned}$$

$$\begin{aligned}
 2a.) \quad & 5 + 12 \cdot (3 - 1) = 29 \\
 & 5 + 12 \cdot 2 = 29 \\
 & 5 + 24 = 29 \\
 & 29 = 29 \checkmark
 \end{aligned}$$

$$\begin{aligned}
 b.) \quad & 60 \div 12 - 5 + 9 = 9 \\
 & 5 - 5 + 9 = 9 \\
 & 0 + 9 = 9 \\
 & 9 = 9 \checkmark
 \end{aligned}$$

none needed because  
order of operations  
tells the correct order

3a.)

$$\begin{aligned}
 &3a - 7 \\
 &3(6) - 7 \\
 &18 - 7 \\
 &\boxed{= 11}
 \end{aligned}$$

3b.)

$$\begin{aligned}
 &2b + 10 \\
 &2(3) + 10 \\
 &6 + 10 \\
 &\boxed{= 16}
 \end{aligned}$$

3c.)

$$\frac{c}{4} + 8$$

$$\frac{12}{4} + 8$$

$$3 + 8 \boxed{= 11}$$

3d.)

$$\frac{d + 5}{3}$$

$$\frac{16 + 5}{3} = \frac{21}{3} = \boxed{7}$$

4a.)

$$\begin{aligned}
 &5x - 2y \\
 &5(6) - 2(10) \\
 &30 - 20 \\
 &\boxed{= 10}
 \end{aligned}$$

4b.)

$$\begin{aligned}
 &3 + 4y - 6x \\
 &3 + 4(10) - 6(6) \\
 &3 + 40 - 36 \\
 &43 - 36 \\
 &\boxed{= 7}
 \end{aligned}$$

5a.)

eight less than\* twice some number

8                      -                      2n

$$\boxed{= 2n - 8}$$

\* less than means  
numbers/terms switch

5b.) two  $\overbrace{\text{more than}}^{\text{}} \text{the quotient of } x \div 5$   
 $2 \quad + \quad x \div 5$

possible answers:

$\boxed{2 + (x \div 5)}$  or  $\boxed{2 + \frac{x}{5}}$  or  $\boxed{x \div 5 + 2}$  or  $\boxed{\frac{x}{5} + 2}$   
 no switch switch

5c.) the  $\boxed{\text{product of}}$  a  $\frac{\text{number}}{n}$  and  $\frac{6 \text{ times } y}{6 \cdot y}$   
 $*$

$\boxed{n \cdot (6 \cdot y)}$  or  $\boxed{n \cdot 6y}$

(6a.)  $x^2 - 2x + 5 = 13$

2:  $2^2 - 2 \cdot 2 + 5 = 13$

$4 - 4 + 5 = 13$

$0 + 5 \neq 13$

$5 \neq 13$

4:  $4^2 - \underline{4 \cdot 2} + 5 = 13$

$\underline{16 - 8} + 5 = 13$

$8 + 5 = 13$

$13 = 13 \checkmark$

$x = 4$

7:  $7^2 - \underline{2 \cdot 7} + 5 = 13$

$49 - 14 + 5 = 13$

$35 + 5 = 13$

$40 \neq 13$

9:  $9^2 - 9 \cdot 2 + 5 = 13$

$81 - 18 + 5 = 13$

$63 + 5 = 13$

$68 \neq 13$

(6b.)  $18 - 5x = x + 6$

2:  $18 - \underline{5 \cdot 2} = \underline{2 + 6}$

$18 - 10 = 8$

$8 = 8 \checkmark$

$x = 2$

4:  $18 - \underline{5 \cdot 4} = 4 + 6$

$18 - 20 = 4 + 6$

$-2 \neq 10$

7:  $18 - \underline{5 \cdot 7} = 7 + 6$

$18 - 35 = 7 + 6$

$-17 \neq 13$

9:  $18 - \underline{5 \cdot 9} = 9 + 6$

$18 - 45 = 9 + 6$

$-27 \neq 15$