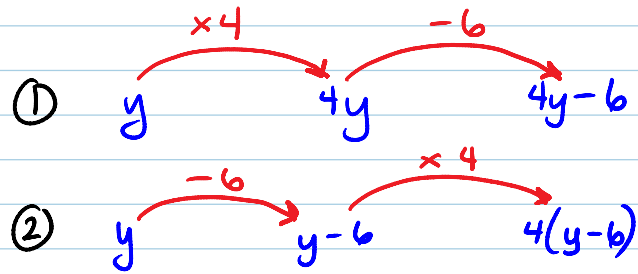


Monday, September 21, 2015
9:24 PM

For Exercises 1–2, draw an arrow diagram to represent the expression.

1. $4y - 6$
2. $4(y - 6)$



3. Evaluate the expression $3t - 4(t - 5) + \frac{t}{2}$ for $t = 6$.

$$\begin{aligned} \textcircled{3} \quad & 3(6) - 4(6-5) + \frac{6}{2} \\ & 18 - 4(1) + 3 \\ & 18 - 4 + 3 \\ & 14 + 3 \\ & \textcircled{17} \end{aligned}$$

4. A student opens a college savings account with a gift from her grandmother. She then makes regular deposits every month from her babysitting earnings. The expression $80n + 500$ models the total balance in her account after n months.

- a. Interpret the meaning of the number 80 in the expression.
- b. Interpret the meaning of the number 500 in the expression.

$\textcircled{4}$ a) 80 represents the \$80 she puts in every month from babysitting.
b) 500 represents the \$500 her grandmother gave her.

5. A vendor at the state fair will buy 600 cans of juice for \$140. He will charge \$1.50 for each can he sells. If he has to pay a \$25 fee to the fair, which of these expressions represents the amount of money he makes, after expenses, for selling n cans of juice?

- A. $600n - 140 - 25$
- B. $140n - 600 - 25$
- C. $1.5n - 600 - 25$
- D. $1.5n - 140 - 25$

$\textcircled{5}$ D. $1.5n - 140 - 25$
 revenue cost of cost of
 from n 600 cans fair fee
 cans.

6. Main floor seats for the school musical are sold for \$8 and balcony seats for \$5. Write an equation that models total ticket revenue R if m main floor seats and b balcony seats are sold.

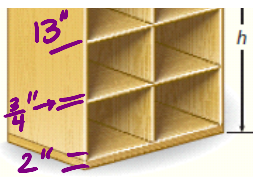
$\textcircled{6} \quad R = 8m + 5b$

7. A furniture company makes a variety of wooden bookcases. The height of each shelf space is 13 inches. The top and bottom pieces are each 2 inches thick, and the pieces separating the shelf spaces are each $\frac{3}{4}$ -inch thick. Write an equation that models the total

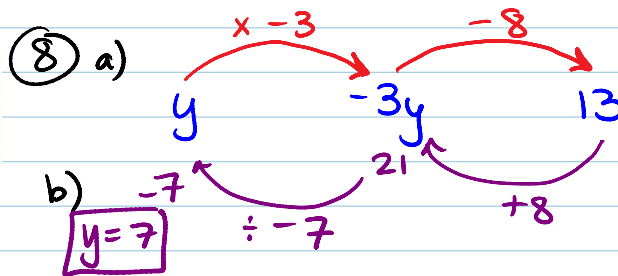


$\textcircled{7} \quad h = 13n + \frac{3}{4}(n-1) + 2(2)$

pieces are each 2 inches thick, and the pieces separating the shelf spaces are each $\frac{3}{4}$ -inch thick. Write an equation that models the total height h of a bookcase that contains n shelf spaces.



- 8 a. Draw an arrow diagram that models the solution of $-3y - 8 = 13$.
b. Solve the equation for y .



9. Which expressions are *not* like terms?

- A. $-5xy$ and $4xy$ *yes*
B. $-4a^2$ and $-4a$ *NO*
C. $7xy$ and $9y$ *yes*
D. $-3r$ and $5r$ *yes*

B

For Exercises 10–11, combine like terms.

10. $4x - 2y - x + 6y$
11. $3ab + 9a + 5ba - 1$

10 $3x + 4y$

11 $8ab + 9a - 1$

For Exercises 12–15, solve, then check.

12. $5h - 3(h - 2) = 8$
13. $6(x + 3) = 4(x - 1) - 2$
14. $\frac{6n - 3}{5} = 1 - 4n$
15. $0.12r + 3 = 0.04r - 5$

12 $5h - 3(h - 2) = 8$
 $5h - 3h + 6 = 8$
 $2h = 2$
 $h = 1$

Check:

$5(1) - 3(1 - 2) = 8$
 $5 - 3(-1) = 8$
 $5 + 3 = 8 \checkmark$

13 $6(x + 3) = 4(x - 1) - 2$
 $6x + 18 = 4x - 4 - 2$
 $6x + 18 = 4x - 6$
 $2x = -24$
 $x = -12$

Check:

$6(-12 + 3) = 4(-12 - 1) - 2$
 $6(-9) = 4(-13) - 2$
 $-54 = -52 - 2 \checkmark$

14 $5 \cdot \frac{6n - 3}{5} = (1 - 4n) \cdot 5$

$6n - 3 = 5 - 20n$
 $26n = 8$
 $n = \frac{8}{26} = \frac{4}{13}$

15 $0.12r + 3 = 0.04r - 5$

$12r + 300 = 4r - 500$
 $8r = -800$
 $r = -100$

Check:

$0.12(-100) + 3 = 0.04(-100) - 5$

$$n = \frac{8}{26} = \frac{4}{13}$$

Check:

$$\frac{6\left(\frac{4}{13}\right) - 3}{5} = 1 - 4\left(\frac{4}{13}\right)$$

$$\frac{\frac{24}{13} - 3}{5} = 1 - \frac{16}{13}$$

$$\frac{\frac{24}{13} - \frac{39}{13}}{5} = \frac{13}{13} - \frac{16}{13} \rightarrow \frac{-15}{13} = \frac{-3}{13} \rightarrow \frac{-15}{13} = \frac{-15}{13} \checkmark$$

Check:

$$0.12(-100) + 3 = 0.04(-100) - 5$$

$$-12 + 3 = -4 - 5$$

$$-9 = -9 \checkmark$$

For Exercises 16–17, use the equation $10 - (t - 6) = 2(4t - 1) - 7t$.

16. Use a table to solve the equation for t .

17. Solve the equation algebraically.

| NORMAL FLOAT AUTO REAL RADIAN MP | | | | |
|----------------------------------|----|----|--|--|
| PRESS + FOR Δ Tb1 | | | | |
| X | Y1 | Y2 | | |
| 2 | 14 | 0 | | |
| 3 | 13 | 1 | | |
| 4 | 12 | 2 | | |
| 5 | 11 | 3 | | |
| 6 | 10 | 4 | | |
| 7 | 9 | 5 | | |
| 8 | 8 | 6 | | |
| 9 | 7 | 7 | | |
| 10 | 6 | 8 | | |
| 11 | 5 | 9 | | |
| 12 | 4 | 10 | | |

X=9

17

$$10 - (t - 6) = 2(4t - 1) - 7t$$

$$10 - t + 6 = 8t - 2 - 7t$$

$$16 - t = t - 2$$

$$18 = 2t$$

$$9 = t$$

18. Write an inequality for the following statement. Then graph it.

k is either less than 0 or greater than 2.

18

$$k < 0 \text{ or } k > 2$$

$$(-\infty, 0) \cup (2, \infty)$$

For Exercises 19–21, solve for the variable.

19. $2(d - 6) > 10d$

20. $3r \leq 5(r - 7) + 1$

21. $-2 < 5m + 8 < 4$

19

$$2(d - 6) > 10d$$

$$2d - 12 > 10d$$

$$-12 > 8d$$

$$-\frac{12}{8} > d$$

$$d < -\frac{3}{2} \quad \left(-\infty, -\frac{3}{2}\right)$$

20

$$3r \leq 5(r - 7) + 1$$

$$3r \leq 5r - 35 + 1$$

$$-2r \leq -36$$

$$r \geq 18 \quad [18, \infty)$$

21

$$-2 < 5m + 8 < 4$$

$$-8 \quad -8 \quad -8$$

$$-10 < 5m < -4$$

$$-2 < m < -\frac{4}{5} \quad \left(-2, -\frac{4}{5}\right)$$