



Warm Up

Grade 7



Evaluate by replacing m with 5 show work

$$\begin{array}{l} \text{a) } 2m + 3 \\ \quad \downarrow \\ 2(5) + 3 \\ \underline{\quad} \\ 10 + 3 \\ \boxed{13} \end{array}$$

$$\begin{array}{l} \text{b) } m - 6 \\ \quad \downarrow \\ (5) - 6 \\ \boxed{-1} \end{array}$$

$$\begin{array}{l} \text{c) } 100 - 4m \\ \quad \downarrow \\ 100 - 4(5) \\ \underline{\quad} \\ 100 - 20 \\ \boxed{80} \end{array}$$

Coeff $\rightarrow 2$

Var $\rightarrow m$

Const $\rightarrow 3$

7. Evaluate each expression by replacing x with 4.

a) $x + 5$

b) $3x$

c) $2x - 1$

d) $\frac{x}{2}$

e) $3x + 1$

f) $20 - 2x$

$$\begin{array}{l} a) x + 5, x = 4 \\ 4 + 5 \\ 9 \end{array}$$

$$\begin{array}{l} b) 3x, x = 4 \\ 3 \times 4 \\ 12 \end{array}$$

$$\begin{array}{l} c) 2x - 1, x = 4 \\ 2 \times 4 - 1 \\ 8 - 1 \\ 7 \end{array}$$

$$\begin{array}{l} d) \frac{x}{2}, x = 4 \\ \frac{4}{2} \\ 2 \end{array}$$

$$\begin{array}{l} e) 3x + 1, x = 4 \\ 3 \times 4 + 1 \\ 12 + 1 \\ 13 \end{array}$$

$$\begin{array}{l} f) 20 - 2x, x = 4 \\ 20 - 2 \times 4 \\ 20 - 8 \\ 12 \end{array}$$

8. Evaluate each expression by replacing z with 7.

a) $z + 12$

b) $10 - z$

c) $5z$

d) $3z - 3$

e) $35 - 2z$

f) $3 + \frac{z}{7}$

$$\begin{array}{l} a) z + 12, z = 7 \\ 7 + 12 \\ 19 \end{array}$$

$$\begin{array}{l} b) 10 - z, z = 7 \\ 10 - 7 \\ 3 \end{array}$$

$$\begin{array}{l} c) 5z, z = 7 \\ 5 \times 7 \\ 35 \end{array}$$

$$\begin{array}{l} d) 3z - 3, z = 7 \\ 3 \times 7 - 3 \\ 21 - 3 \\ 18 \end{array}$$

$$\begin{array}{l} e) 35 - 2z, z = 7 \\ 35 - 2 \times 7 \\ 35 - 14 \\ 21 \end{array}$$

$$\begin{array}{l} f) 3 + \frac{z}{7}, z = 7 \\ 3 + \frac{7}{7} \\ 3 + 1 \\ 4 \end{array}$$

9. **Assessment Focus** Jason works at a local fish and chips restaurant.

He earns \$7/h during the week, and \$9/h on the weekend.

a) Jason works 8 h during the week and 12 h on the weekend.

Write an expression for his earnings.

b) Jason works x hours during the week and 5 h on the weekend.

Write an expression for his earnings.

c) Jason needs \$115 to buy sports equipment. He worked 5 h on the weekend.

How many hours does Jason have to work during the week to have the money he needs?

$$h = \text{hours}$$

$$\begin{aligned} \text{a) Weekly Earnings} &= 7h \quad h=8 \\ &= 7 \times 8 \\ &= 56 \end{aligned}$$

$$\begin{aligned} \text{Weekend Earnings} &= 9h \quad h=12 \\ &= 9 \times 12 \\ &= 108 \end{aligned}$$

$$\begin{aligned} \text{b) Earnings} &= 7x + (9 \times 5) \\ &= 7x + 45 \end{aligned}$$



$$\begin{aligned} \text{c) Weekend Earnings} &= 9 \times 5 \\ &= 45 \end{aligned}$$

$$115 - 45 = 70$$

$$7x \underline{\quad} = 70$$

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Jason needs to work 10 more hours.

10. Take It Further A value of n is substituted in each expression to get the number in the box.

Find each value of n .

a) $5n$ 30

b) $3n - 1$ 11

c) $4n + 7$ 15

d) $5n - 4$ 11

e) $4 + 6n$ 40

f) $\frac{n}{8}$ 5

a) $5n$ 30
 $n = 6$

b) $3n - 1$ 11
 $\quad - 1 = 11$
 $\quad 12$
 $3 \times \underline{\quad} = 12$
 $n = 4$

c) $4n + 7$ 15
 $\underline{8} + 7 = 15$
 $4 \times \underline{2} = 8$
 $n = 2$

d) $5n - 4$ 11
 $\underline{15} - 4 = 11$
 $5 \times \underline{3} = 15$
 $n = 3$

e) $4 + 6n$ 40
 $4 + \underline{36} = 40$
 $6 \times \underline{6} = 36$
 $n = 6$

f) $\frac{n}{8}$ 5
 $\frac{40}{8} = 5$
 $n = 40$



We have been using variables, which are letters. Can we add the letters? If so, when can we add or combine the variables?

Ex) If you bought 3 apples and 2 hamburgers at the store, could you combine these?

No because they are 2 different items.

Important

When combining variables, you can only combine them if they are the same. If they are the same they are called like terms.

$$\text{☺} + \text{☺} + \text{☺} + \text{☺} + \text{☺} + \text{☺} + \text{☺} + \text{☺} = 10 \text{ ☺}$$

$$2 \star + 1 \star + 3 \star = 6 \star$$

$$4 \text{⊗} + 2 \text{⊗} + 1 \text{⊗} + 2 \text{⊗} + 1 \text{⊗} = 10 \text{⊗}$$

$$\underline{3 \text{⊗}} + \underline{6 \star} + \underline{5 \star} + \underline{1 \text{⊗}} = 4 \text{⊗} + 11 \star$$

$$1s + 2s + 2s + 2s + 3s = 10s$$

$$2t + 1t + 3t = 6t$$

$$4f + 2f + f + 2f + f = 10f$$

$$\underline{3d} + \underline{6y} + \underline{5y} + \underline{d} = 4d + 11y$$

Simplify the following, then evaluate: (Must collect like terms first)

Use high lighters

(a) $4b + 7b$, $b = 3$

$$\begin{aligned} & \underline{4b} + \underline{7b} \\ & 11b \\ & 11(3) \\ & \boxed{33} \end{aligned}$$

(b) $2s + 7s$, $s = 5$

$$\begin{aligned} & 2s + 7s \\ & 9s \\ & = 9(5) \\ & = \boxed{45} \end{aligned}$$

(c) $5m + 3c + 2m + 4c$, $m = 4$ and $c = 6$

$$5m + 2m + 3c + 4c$$

$$\begin{aligned} & 7m + 7c \\ & 7(\underline{4}) + 7(\underline{6}) \\ & \underline{28} + \underline{42} = \boxed{70} \end{aligned}$$

(d) $8p + 4q + 3q + p + 2q + 2q$, $p = 2$ and $q = 5$

$$\begin{aligned} & \underline{8p} + \underline{p} + \underline{4q} + \underline{3q} + \underline{2q} + \underline{2q} \\ & 9p + 11q \\ & 9(\underline{2}) + 11(\underline{5}) \\ & \underline{18} + \underline{55} \\ & \boxed{73} \end{aligned}$$

Homework

Combining Like Terms Worksheet 2



$$\underline{3x + 8x + x + x + x} + \underline{2 + 5}$$

$$14x + 7$$

$$\underline{20n} + \underline{4y} + \underline{9y} + \underline{7n}$$

$$\underline{20n} + \underline{7n} + \underline{4y} + \underline{9y}$$

$$27n + 13y$$

$$\underline{2m} + \underline{6n} + \underline{8z} + \underline{7m} + \underline{2z} + 9k$$

$$\underline{2m} + \underline{6m} + \underline{7m} + \underline{8z} + \underline{2z} + 9k$$

$$15m + 10z + 9k$$

$$4) \quad 3b - 10 + 3b$$

$$\underbrace{3b + 3b} - 10$$

$$6b - 10$$

Attachments

Grade 7 Unit 1 Combining Like terms WS 1 (WED. OCT2).docx