

HW #4 Adding Linear Expressions

Determine whether the algebraic expression is a linear expression. Explain.

1. $x^2 + x + 1$

no, cannot have x^2

2. $-2x^0 - 8$

yes!
x is to the 1st power

3. $x - x^4$

no, cannot have x^4

Find the sum.

4. $(x + 8) + (x + 12)$

$2x - 4$

8. $5(-3x - 7) + (3x + 21)$

$-15x - 35 + 3x + 21$
 $-15x + (-35) + 3x + 21$
 $-12x - 14$

5. $(7 - x) + (3x + 2)$

$7 + (-x) + 3x + 2$
 $2x + 9$

9. $(1 - 5x) + 2(2x + 8)$

$1 + (-5x) + 4x + 16$
 $-x + 17$

6. $(2x - 9) + (-4x - 5)$

$2x + (-9) + (-4x) + (-5)$
 $-2x - 14$

10. $\frac{1}{3}(9 + 6x) + \frac{1}{4}(12x - 8)$

$3 + 2x + 3x - 2$
 $5x + 1$

7. $(2x - 6) + 4(x - 3)$

$2x + (-6) + 4x + (-12)$
 $6x - 18$

11. $(4x + 4) + (-2x - 3)$

$4x + 4 + (-2x) + (-3)$
 $2x + 1$

12. You start a new job. After w weeks, you have $(10w + 120)$ dollars in your savings account and $(45w + 25)$ dollars in your checking account. Write an expression that represents the total in both accounts.

$$\begin{aligned} & (\underline{10w} + 120) + (\underline{45w} + 25) \\ & \boxed{55w + 145} \end{aligned}$$

13. While catching fireflies, you and a friend decide to have competition. After m minutes, you have $(3m + 13)$ fireflies and your friend has $(4m + 6)$ fireflies.

- a. Write an expression that represents the number of fireflies you and your friend catch together.

$$\begin{aligned} & (\underline{3m} + 13) + (\underline{4m} + 6) \\ & \boxed{7m + 19} \end{aligned}$$

- b. The competition ends after 5 minutes. Who has more fireflies?

$3m + 13$	$4m + 6$
$3(5) + 13$	$4(5) + 6$
$15 + 13$	$20 + 6$
28	26

You have more fireflies.