

Guided Practice



Subtract. Use models if needed. (Examples 1 and 2)

- $(6x + 5) - (3x + 1)$
- $(-4x + 2) - (-2x + 1)$
- $(9x - 4) - (-2x + 1)$
- $(2x + 7) - (x + 1)$

5. The cost of shipping an item that weighs x pounds from Charlotte to Chicago is shown in the table. (Example 3)

Shipping Company	Cost (\$)
Atlas Service	$4x + 2.80$
Mid-Atlantic Service	$3x + 1.25$



$$\begin{array}{r} 4x + 2.80 \\ - 3x + 1.25 \\ \hline x + 1.55 \end{array}$$

- a. Write an expression to represent **how much more** Atlas charges than Mid-Atlantic for shipping an item.

- b. If an item weighs 2 pounds, how much more does Atlas charge for shipping it?

$$\$1x + \$1.55 \text{ when } x = 2 \text{ lbs} \quad \$3.55$$

Independent Practice

Go online for Step-by-Step Solutions



Subtract. Use models if needed. (Examples 1 and 2)

- $(3x + 7) - (x + 5)$ $2x + 2$
- $(8x - 9) - (3x - 1)$ $(8x + 9) - (3x + -1)$
- $(5x + 6) - (2x + 5)$ $3x + 1$
- $(-4x + 3) - (-x - 4)$ $-3x + 7$
- $(3x + 7) - (x - 2)$ $2x + 9$
- $(x + 5) - (2x + 3)$ $-x + 2$

$$\begin{array}{l} 6. \quad 3x - 1x = 2x \\ \text{AND} \\ 7 - 5 = 2 \\ 2x + 2 \end{array}$$

12. **CCSS Model with Mathematics** The expression $5.5x + 2$ represents the number of miles Celeste rode her bike, and $10x$ represents the number of miles that Kimiko rode her bike, in x hours. (Example 3)

- Write an expression to show how many more miles Kimiko rode than Celeste.
- If they each rode for 2 hours, how many more miles did Kimiko ride?

$$\begin{array}{l} 7. \quad -4x - (-1x) = -3x \\ -4 - (-1) = -4 + 1 = -3 \\ \text{AND} \\ 3 - (-4) = 3 + 4 = 7 \\ -3x + 7 \end{array}$$

13. Evan plans to download x songs from a music site on the Internet. The expression $1.29x$ represents the cost at Web site A, and $0.25x + 25$ represents the cost at Web site B. How much more will Evan pay at Web site A than Web site B if he downloads an average of 30 songs per month?

14. The expression $5\frac{1}{2}x + 6$ represents the perimeter of the rectangle shown. Write an expression that represents the length of the rectangle.



$$\begin{array}{l} 8. \quad 8x - 3x = 5x \\ \text{AND} \\ -9 - (-1) = -8 \end{array}$$

H.O.T. Problems Higher Order Thinking

- CCSS Identify Structure** Write two linear expressions that have a difference of $4x + 1$.
- CCSS Persevere with Problems** Suppose A and B represent linear expressions. If $A + B = 2x - 2$ and $A - B = 4x - 8$, find A and B .
- Building on the Essential Question** Explain how you can use a rule for subtracting integers to help subtract linear expressions.

$$\begin{array}{l} 1 - 2 = 1 + (-2) = -1 \\ 5x + (-8) \\ 5x - 8 \end{array}$$

$$5 - 3 = 2$$

$$\begin{array}{r} 1x + 5 \\ - (2x + 3) \\ \hline -x + 2 \\ \text{AND} \end{array} \quad \begin{array}{r} x + 3 \\ - (2x + 5) \\ \hline -x - 2 \\ \text{AND} -2 \end{array}$$

13 Evan plans to download x songs from a music site on the Internet. The expression $1.29x$ represents the cost at Web site A, and $0.25x + 25$ represents the cost at Web site B. How much more will Evan pay at Web site A than Web site B if he downloads an average of 30 songs per month?



$$\begin{aligned} & \text{SITE A} - \text{SITE B} \\ & (1.29x) - (0.25x + 25) \\ & (1.29x + 0) - (0.25x + 25) \\ & 1.29x - 0.25x = 1.04x \qquad 0 - 25 = -25 \end{aligned}$$

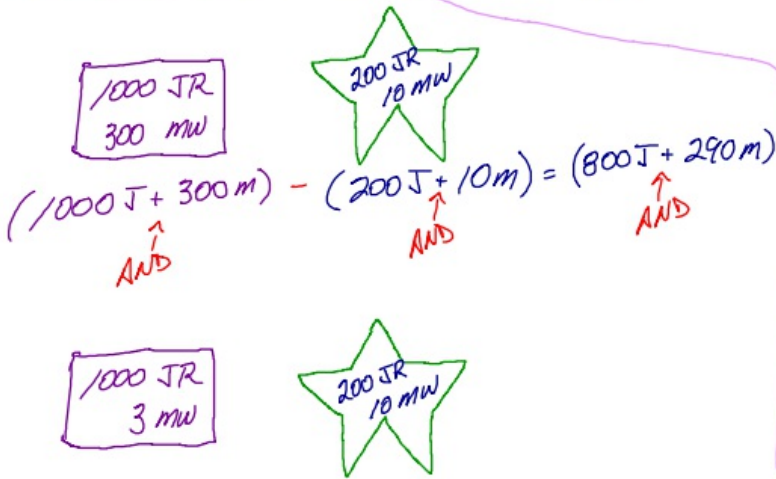
$1.04x - 25$ DIFFERENCE BETWEEN THE COST AT SITE A AND SITE B

$$1.04(30) - 25$$

$$1.04 = (1 + 0.04)^{30}$$

$$30 + 1.20 = 31.20$$

$$31.20 - 25 = \boxed{\$6.20}$$



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$A - B$

$$(1.29x) - (0.25x + 25)$$

$$[1.29(30)] - [0.25(30) + 25]$$

$$(1.29x + 0) - (0.25x + 25)$$

$$1.29 - 0.25 = 1.04$$

$$0 - 25 = -25$$

$$1.04x - 25$$

$$1.04(30) - 25 =$$

$$31.2 - 25 = 6.2$$

$\$6.20$

$$30(1 + 0.04)$$

$$30 + 1.2$$

JR S



$$(1000J + 300S) - (35J + 5S)$$

$$965J + 295S$$

Subtract. Use models if needed. (Examples 1 and 2)

1. $(6x + 5) - (3x + 1) = 3x + 4$

3. $(9x - 4) - (-2x + 1)$

1. $6x - 3x = 3x$
 $5 - 1 = 4$

~~2. $(-4x + 2) - (-2x + 1) = -2x + 3$~~

4. $(2x - 7) - (x + 1)$
 $-4 - (-2) = -2$

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

3. $(9x - 4) - (-2x + 1)$
 $-4 - 1 = -5$
 $//x + -5$

$(2x - 7) - (1x + 1)$
 $x - 8$ OR $x + -8$

$9 - 5 = 4$



Standardized Test Practice

18. Subtract.

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

A $-10x - 2$

B $-10x + 10$

C $4x - 2$

D $4x + 10$

19. Jorge bought x tickets to attend a football game and a baseball game. The expression $8x + 62$ represents the total cost of the football game, and $9x + 34$ represents the total cost of the baseball game. How much more did the football game cost if Jorge bought 7 tickets for each game?

F \$35

H \$11

G \$21

J \$7

20. The length of a rectangle is $7x - 4$. The width of the rectangle is $5x + 1$. Which expression represents the difference between the length and the width of the rectangle?

A $2x - 3$

B $2x + 3$

C $2x - 5$

D $2x + 5$

21. **Short Response** The expression $3x + 2$ represents the number of miles Emma walked in x hours. Lea walked $4x - 1$ miles in x hours. Write an expression that represents how much farther Lea walked than Emma. *LEA - EMMA*

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

$$4x - 1 - 3x - 2 = x - 3$$

Handwritten work:
 $4x - 1 - 3x - 2 = x - 3$
 $4x - 3x = 1x$
 $-1 - 2 = -3$
 $x - 3$



Common Core Review

Solve each problem. **7.RP.2**

22. What is 15% of 80?

24. 5 is 4% of what number?

26. 17 is what percent of 20?

23. 46 is what percent of 115?

25. Find 15% of 325.

27. 14 is 20% of what number?

Use the Distributive Property to write each expression as an equivalent expression. **7.EE.1**

28. $6(n - 3)$

29. $(w + 9)8$

30. $-7(a + 5)$

31. $-4(-b - 2)$

32. There are 21 birds at a bird sanctuary, 9 of which are parrots. Write the ratio of parrots to total birds as a fraction in simplest form. **7.RP.1**

33. In a survey about favorite movies, 54 out of 120 people preferred comedies. What percent of the people in the survey preferred comedies? **7.RP.3**

34. The temperature in Bismarck, North Dakota, is 13°F at 9 A.M. It is -3°F at 1 P.M. What is the difference in temperature between 9 A.M. and 1 P.M.? **7.NS.3**

Evaluate each expression if $a = 8$, $b = -4$, and $c = -15$. **6.EE.2a**

35. $a + c$

36. bc

37. $2a + 5b$

38. abc

39. $3ac - b$

40. $b(a + c)$

41. $ab + c$

42. $4(a - b)$

43. $3b - 5c$

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