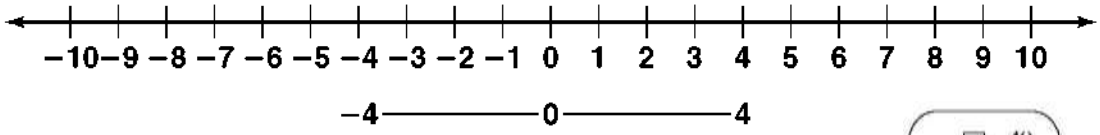
Name _____ Class _____ Date _____

Reteaching 11-1

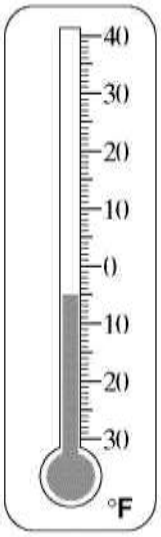
Exploring Integers

The numbers . . . –3, –2, -1, 0, +1, +2, +3, . . . are *integers.*
Integers are the set of positive whole numbers, their opposites, and 0.



The absolute value of a number is its distance from 0 on a number line. | –4| = 4. *Opposite integers*, like –4 and 4, are the same distance from 0.

You can use integers to represent real-world situations. On the Fahrenheit thermometer to the right, the temperature reads 5° below zero. The integer -5 can be used to represent this situation.



Write the opposite of each integer.

1. 7 _____ **2.** –212 _____ **3.** 49 _____

4. 1,991 _____ **5.** –78 _____ **6.** 16 _____

Find each absolute value.

7. | –2 | _____ **8.** | –100 | _____ **9.** | –16 | _____

10. |16 | _____ **11.** |12 | _____ **12.** |75| _____

13. spend $20 _____ **14.** ride to the 12th floor on an elevator _____

15. 8° below 0° Centigrade _____ **16.** dive 10 feet below the water's surface _____

17. earn $15 _____ **18.** gain of 1,400 feet in elevation _____

Name_____ Class_____ Date _____

Reteaching 11-2

Comparing and Ordering Integers

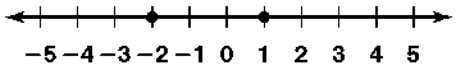
You can use a number line to compare integers. For two integers on a number line, the greater integer is farther to the right.

Compare –2 and 1.

① Locate –2 and 1 on the number line.

② Find that 1 is farther to the right.

③ Write 1 > –2 (1 is greater than –2), or -2 < 1 (–2 is less than 1).



Compare, using < or >.

1. 7 ☐ –5 **2.** –9 ☐ –5 **3.** 6 ☐ –6 **4.** –12 ☐ 0

5. –33 ☐ 0 **6.** –11 ☐ –13 **7.** –5 ☐ 4 **8.** –3 ☐ –2

Order each set of integers from least to greatest.

9. –7, –9, –19, –8

_____

10. 1, –5,6,8, –2

_____

11. 5, –31, –4, –10

_____

12. –2, –22,10, –7

_____

Write an integer that is located on a number line between the given integers.

13. –3,_____,8 **14.** –24,22_____, **15.** –5,_____,9

16. 0,_____,4 **17.** –2,_____,2 **18.** –17,_____,–15

Complete with an integer that makes the statement true.

19. –10 >_____ **20.** 0 >_____ **21.** –2 >_____

22. 5 <_____ **23.** –7 <_____ **24.** –36 <_____

Name_____ Class_____ Date_____

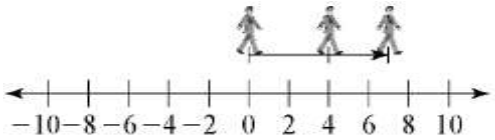
Reteaching 11-3

Adding Integers

You can add integers on a number line.

Example 1: Find 4 + 3.

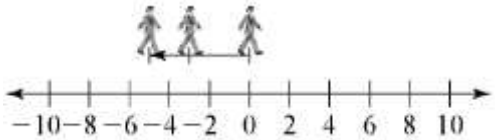
Start at 0. Move 4 units right and then 3 units right.



4 +3 = 7

Example 2: Find −3 + −2.

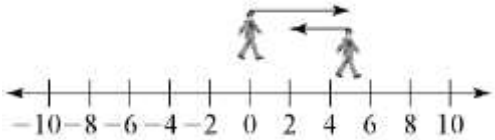
Start at 0. Move 3 units left and then 2 units left.



-3 + (−2) = −5

Example 3: Find 5 + (−3).

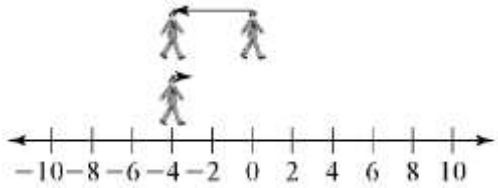
Start at 0. Move 5 units right and then 3 units left.



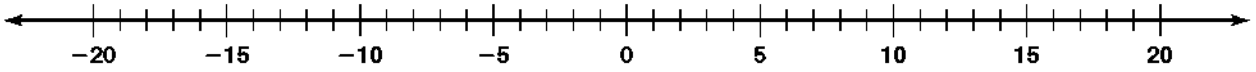
5 + (−3) = 2

Example 4: Find −4 + 1.

Start at 0. Move 4 units left and then 1 unit right.



−4 + 1 = −3



Use the number line to find each sum.

1. −4 + (-8) _____ **2.** 4 + (−1) _____ **3.** −6 + 8 _____

4. −7 + 3 _____ **5.** −5 + 8 _____ **6.** 3 + 5 _____

7 −3 + (−5) _____ **8.** 3 + (−5) _____ **9.** −3 + 5 _____

Find each sum.

10. −14 + (−5) _____ **11.** 5 + (−12) _____ **12.** −9 + 9 _____

13. 18 + (−18) _____ **14.** 0 + (−4) _____ **15.** 6 + 0 _____

16. 15 + (−15) _____ **17.** −12 + 0 _____ **18.** −9 + 10 _____

19. 12 + (−11) _____ **20.** −12 + 11 _____ **21.** 2 + (−10) _____

Name_____ Class_____ Date_____

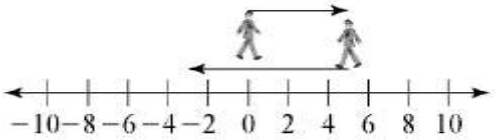
Reteaching 11-4

Subtracting Integers

T o subtract an integer, add the opposite.

Example 1: Subtract $5 - 8$.

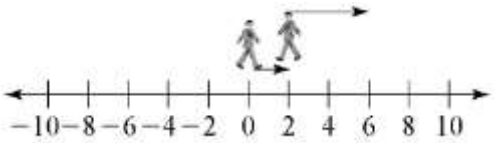
Add the opposite: $5 + (-8)$



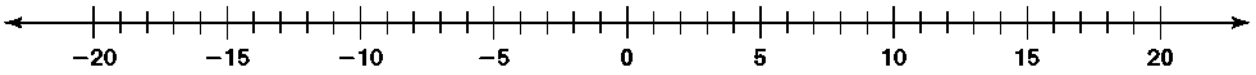
$5 - 8 = -3$

Example 2: Subtract $2 - (-4)$.

Add the opposite: $2 + 4$



$2 - (-4) = 6$



Use a number line. Find each difference.

1. $3 - (-6)$ _____ **2.** $2 - (-4)$ _____ **3.** $-1 - 2$ _____

4. $-3 - (-5)$ _____ **5.** $-8 - (-3)$ _____ **6.** $4 - (-4)$ _____

7. $-8 - 2$ _____ **8.** $8 - (-2)$ _____ **9.** $-8 - (-2)$ _____

10. $-7 - 4$ _____ **11.** $-10 - 2$ _____ **12.** $-5 - (-5)$ _____

13. $-5 - 6$ _____ **14.** $9 - (-3)$ _____ **15.** $-11 - (-6)$ _____

Find each difference.

16. $15 - (-4)$ _____ **17.** $-12 - 3$ _____ **18.** $21 - (-7)$ _____

19. $3 - (-12)$ _____ **20.** $-2 - 10$ _____ **21.** $-13 - 13$ _____

22. $5 - (-5)$ _____ **23.** $18 - (-10)$ _____ **24.** $-7 - (-13)$ _____

25. $14 - 16$ _____ **26.** $3 - 15$ _____ **27.** $-6 - (-9)$ _____

Name_____ Class_____ Date_____

Reteaching 11-5

Multiplying Integers

When two integers have like signs, the product will always be positive.

Both integers are positive: $3 \times 4 = 12$
Both integers are negative: $-3 \times (-4) = 12$

When two integers have different signs, the product will always be negative.

One integer positive, one negative: $3 \times (-4) = -12$ One
integer negative, one positive: $-3 \times 4 = -12$

Example 1: Find -8×3.

① Determine the product.
$8 \times 3 = 24$

② Determine the sign of the product. Since one integer is negative and one is positive, the product is negative.

③ So $-8 \times 3 = -24$.

Example 2: Find $(-10) \times (-20)$.

① Determine the product.
$10 \times 20 = 200$

② Determine the sign of the product. Since both integers are negative, the product is positive.

③ So $(-10) \times (-20) = 200$.

Find each product.

1. $7 \times (-4)$ _____

2. $-5 \times (-9)$ _____

3. -11×2 _____

4. $8 \times (-9)$ _____

5. $15 \times (-3)$ _____

6. $-7 \times (-6)$ _____

7. -12×6 _____

8. $13 \times (-5)$ _____

9. $-10 \times (-2)$ _____

10. A dog lost 2 pounds per week three weeks in a row. What integer expresses the total change in the dog's weight? _____

Find each quotient.

11. $18 \times (-6)$ _____

12. $-35 \times (-7)$ _____

13. -15×3 _____

14. $28 \times (-4)$ _____

15. $25 \times (-5)$ _____

16. $-27 \times (-9)$ _____

17. -12×4 _____

18. $33 \times (-11)$ _____

19. $-50 \times (-2)$ _____

Name_____ Class_____ Date_____

Reteaching 11-6

Dividing Integers

When two integers have like signs, the quotient will always be positive.

Both integers are positive: $8 \div 2 = 4$
Both integers are negative: $-8 \div (-2) = 4$

When two integers have different signs, the quotient will always be negative.

One integer positive, one negative: $8 \div (-2) = -4$
One integer negative, one positive: $-8 \div 4 = -2$

Example 1: Find $-24 + 8$.

① Determine the quotient.
$24 \div 8 = 3$

② Determine the sign of the quotient. Since one integer is negative and one is positive, the quotient is negative.

③ So, $-24 \div 8 = 3$.

Example 2: Find $35 + (-7)$.

① Determine the quotient.
$35 \div 7 = 5$

② Determine the sign of the quotient. Since one integer is positive and one is negative, the quotient is negative.

③ So, $35 \div (-7) = -5$.

Find each quotient.

1. $18 \div (-6)$ _____

2. $-35 \div (-7)$ _____

3. $-15 \div 3$ _____

4. $28 \div (-4)$ _____

5. $25 \div (-5)$ _____

6. $-27 \div (-9)$ _____

7. $-12 \div 4$ _____

8. $33 \div (-11)$ _____

9. $-50 \div (-25)$ _____

Find the rate of change for each situation.

10. The water level in a lake rises 12 inches in 4 days.

_____

11. The temperature drops 40° as you rise 4 kilometers into the air.

_____

12. A dog grows 24 inches in 12 months. _____

13. A diver descends 120 feet in 6 minutes. _____

14. A ship sinks 90 feet in 10 seconds. _____

Name _____ Class _____ Date _____

Reteaching 11-7

Solving Equations with Integers

You can solve equations that contain integers using the same methods you used to solve equations with whole numbers.

Solve the equations. Check the solution.

Solve. $y - 6 = -18$

$y - 6 + 6 = -18 + 6$ ← Add 6 to each side to undo the subtraction.

$y = -12$ ← Simplify.

Check $(-12) - 6 = -18$ ← Check by replacing y with –12.

Solve. $-4x = -16$

$-4x \div (-4) = -16 \div (-4)$ ← Divide each side by –4 to undo the multiplication.

$x = 4$ ← Simplify.

Check. $-4 \cdot 4 = -16$ ← Check by replacing x with 4.

Solve each equation. Check the solution.

1. Solve.

$n + 6 = 36$

$n + 6 - 6 = 36 - 6$ ← Subtract 6 from each side to undo the addition.

$n = \square$ ← Simplify.

Check.

$\square + 6 = 36$ ← Check by replacing n with your solution.

2. $r - 10 = -33$

_____

_____

3. $c \div 13 = -3$

_____

_____

4. $9k = -108$

_____

_____

5. $-6r = 96$

_____

_____

6. $-11 + s = -1$

_____

_____

7. $b + (-3) = -18$

_____

_____

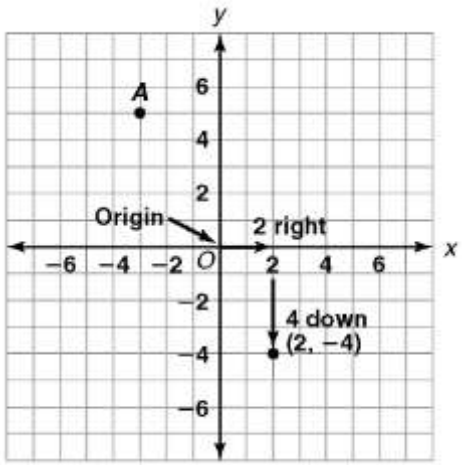
Name _____ Class _____ Date _____

Reteaching 11–8

Graphing in the Coordinate Plane

Example: Graph (2, –4).

- 2 is the *x–coordinate.* It tells how far to move left or right from the origin.
- –4 is the *y–coordinate.* It tells how far to move up or down from the origin.



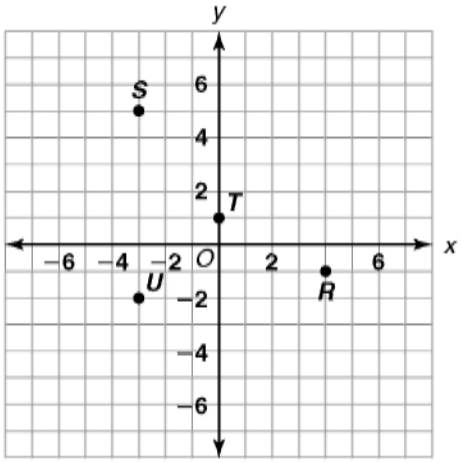
Find the coordinates of point *A.*

① Start at the origin.
② How far left or right? *3 left*
The *x–coordinate* is –3.
③ How far up or down? *5 up*
The *y–coordinate* is 5.

The coordinates of point *A* are (–3, 5).

Graph each point in a coordinate plane.

1. *B* (1, 6)
2. *C* (–4, –3)
3. *D* (0, 5)
4. *E* (–2, 2)
5. *F* (–1, –5)
6. *G* (6, –4)
7. *H* (5, 5)
8. *J* (4, 0)
9. *K* (–4, –4)
10. *L* (2, –3)
11. *M* (–2, 0)
12. *N* (5, –1)
13. *P* (0, –3)
14. *Q* (–4, 0)



Find the coordinates of each point.

15. *R* _____
16. *S* _____
17. *T* _____
18. *U* _____

Look at the coordinate grid above.

19. If you travel 7 units down from *S*, at which point will you be located?

_____

20. If you travel 4 units right from *T* and 2 units down, at which point will you be located?

_____

Name _____ Class _____ Date _____

Reteaching 11–9

Application of Integers

To find a *balance*, add the income (positive number) and the expenses (negative number). The sum is the balance.

Balance Sheet for Lunch Express		
Month	**Income**	**Expenses**
January	$1,095	–$459
February	$1,468	–$695
March	$1,773	–$700
April	$602	–$655

- To find the balance for February, add

  1,468 + (–695) = 773.

  Lunch Express made a profit of $773.

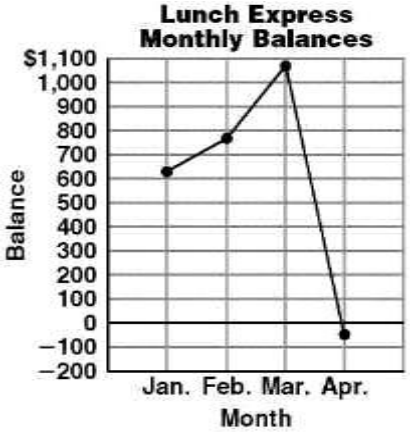
- To find the balance for April, add

  602 + (–655) = –53.

  Lunch Express had a loss of $53.

To look for a trend in the data, draw a line graph of the monthly balances.

- Balances range from –$53 to $1,073. Make the vertical scale from –$200 to $1,100. Use intervals of $100.
- Use the horizontal scale for the months.



The trend was for increasing balances—until April.

Find each sum or difference.

1. –$9 + $17 _____

2. $51 – $83 _____

3. $42 – (–$18) _____

4. –$77 + $92 _____

5. –$109 + $109 _____

6. $28 – $4,310 _____

7. –$156 + $429 _____

8. $232 – (–$97) _____

9. –$401 – $582 _____

10. A company earned $2,357 in January. The company earned $2,427 in February and $1,957 in March. The company's total expenses for the first quarter were $4,594. What was the company's profit?

_____

11. Your bank account is overdrawn $31. The bank charges $20 for being overdrawn. You deposit $100. What is the balance of your bank account?

_____

Name _____ Class _____ Date _____

Reteaching 11-10

Graphing Functions

A table or a graph can show how the input and output of a *function* are related.

Make a table to show how number of feet is a function of number of yards.

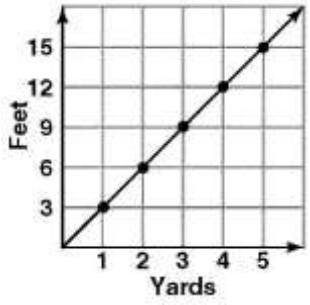
Input (yards)	Output (feet)
1	3
2	6
3	9
4	12
5	15

The table shows that for every yard, there are 3 feet. You multiply the number of yards by 3 to find the number of feet.

Use the values in the table to draw a graph of the function.

① Locate the points from the table: (1, 3), (2, 6), (3, 9), (4, 12), (5, 15)

② Draw a line through the points.



Complete the table.

1.

Input	Output
1	4
2	5
3	6
4	
5	

2.

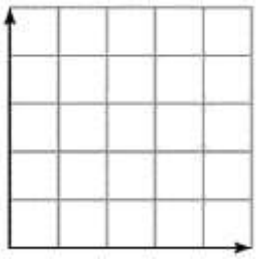
Input	Output
4	2
6	4
8	6
10	
12	

3.

Input	Output
2	10
3	15
4	20
5	
6	

Complete each table given the rule. Then graph some points for the function.

4. cups as a function of quarts



5. days as a function of weeks