

Multiplying and Dividing Integers

RCISES 1-4

Simplify.

- a) $(-5)(+6)$ b) $(+7)(-8)$ c) $(-7)(-9)$ d) $(+6)(+9)$
 e) $(-12)(+5)$ f) $(-3)(-13)$ g) $(+8)(+9)$ h) $(-5)(+5)$
 i) $(-5)(-5)$ j) $(+7)(-6)$ k) $(+3)(+4)$ l) $(-4)(-8)$
 m) $(+6)(-7)$ n) $(+4)(-7)$ o) $(+9)(+3)$ p) $(0)(-7)$

Simplify.

- a) $(+16)(-5)$ b) $(-18)(+3)$ c) $(-14)(-4)$ d) $(-17)(+9)$
 e) $(-11)(+28)$ f) $(+19)(+11)$ g) $(+36)(+72)$ h) $(+47)(-16)$
 i) $(-69)(-89)$ j) $(-74)(-18)$ k) $(+37)(-31)$ l) $(-44)(-22)$

Simplify.

- a) $(-2)(+5)(-7)$ b) $(-3)(-4)(-2)$ c) $(+6)(-5)(+4)$
 d) $(-1)(+3)(-3)$ e) $(+2)(-3)(-3)$ f) $(-2)(-2)(-3)$
 g) $(+5)(-1)(-1)(-1)$ h) $(-1)(-2)(-3)(-4)$ i) $(-5)(+4)(+3)(-2)$

Simplify.

- a) $(-2)(+3) + (-6)(-2)$ b) $(-4)(-3) + (-1)(-2)$
 c) $(-2)(-6) - (+5)(-2)$ d) $(-3)(+7) - (+1)(+5)$
 e) $(-2)(+8) - (-3)(-3)$ f) $(+4)(-7) + (-8)(+6)$
 g) $(-3)(+9) + (-2)(+7)$ h) $(-7)(-9) - (-6)(-7)$
 i) $(-2)(-2)(+1) + (-3)(-3)(-2)$ j) $(-5)(-2)(-2) - (+2)(-1)(-1)$

What must be true of two integers if their product is:

- a) positive b) negative c) zero?

By comparing the answers in Exercise 3, what appears to be true for:

- a) the product of an even number of negative numbers;
 b) the product of an odd number of negative numbers?

Find the integer represented by each square.

- a) $(+5) \times \square = -20$ b) $(-2) \times \square = 16$ c) $\square \times (+7) = -56$
 d) $\square \times (-6) = 54$ e) $(-8) \times \square = -72$ f) $\square \times (-12) = -96$
 g) $-32 = (+8) \times \square$ h) $48 = (-16) \times \square$ i) $-39 = \square \times (-13)$
 j) $-15 \times \square = -75$ k) $\square \times 18 = -72$ l) $98 = (-7) \times \square$

RCISES 1-3

1. Simplify.

- a) $(-48) \div (+4)$ b) $(-36) \div (-4)$ c) $(+32) \div (-8)$
 d) $(-18) \div (+3)$ e) $(-60) \div (-12)$ f) $(-40) \div (-5)$

2. Simplify.

- a) $\frac{-36}{4}$ b) $\frac{46}{-2}$ c) $\frac{-18}{-9}$ d) $\frac{-85}{5}$ e) $\frac{-49}{-7}$
 f) $\frac{81}{-9}$ g) $\frac{-76}{-19}$ h) $\frac{-121}{11}$ i) $\frac{132}{-12}$ j) $\frac{91}{13}$

3. Simplify.

- a) $\frac{(-4)(10)}{-8}$ b) $\frac{(6)(-15)}{-5}$ c) $\frac{(-10)(12)}{(5)(-3)}$ d) $\frac{(-15)(-20)}{(-10)(3)}$
 e) $\frac{(-50)(9)}{(15)(6)}$ f) $\frac{(14)(-16)}{(-8)(-7)}$ g) $\frac{(-5)(9)(-24)}{(-3)(4)}$ h) $\frac{(-6)(-8)}{(-2)(-1)(-3)}$

4. Simplify.

- a) $\frac{(-30)}{5} + \frac{15}{(-3)}$ b) $\frac{(-20)}{10} + \frac{8}{(-2)}$ c) $\frac{(-9)}{(-3)} - \frac{12}{4}$
 d) $\frac{14}{(-2)} - \frac{(-16)}{8}$ e) $\frac{(-36)}{4} + \frac{(-56)}{(-8)}$ f) $\frac{(-42)}{7} - \frac{54}{(-6)}$
 g) $\frac{(-63)}{(-7)} - \frac{(-56)}{(-8)}$ h) $\frac{(-81)}{(-9)} + \frac{(-72)}{(-8)}$ i) $\frac{35}{7} + \frac{48}{(-6)}$

5. Canada sells products and services to other countries and buys products and services from them. The Canadian balance of payments is a measure of all yearly business transactions between Canada and the rest of the world.

- a) What does a negative balance of payments indicate?
 b) What was the average monthly balance of payments for each year?

Year	Balance of Payments \$ Millions
1979	4 319
1980	-174
1981	10 468
1982	1 106
1983	5 366
1984	5 307
1985	1 901

6. The temperature is falling at the rate of $3^{\circ}\text{C}/\text{h}$. Find how long it takes to fall through each temperature range.

- a) -4°C to -10°C b) -2°C to -11°C c) 4°C to -11°C

7. Find the integer represented by each square.

- a) $40 \div \square = -10$ b) $\square \div (-5) = -7$ c) $\frac{\square}{(-3)} = 6$
 d) $\frac{(-20)}{\square} = -4$ e) $-3 = \frac{\square}{(-2)}$ f) $(-65) \div \square = -13$

Multiplying and Dividing

Integers

EXERCISES 1-4

Do all on this side.

Simplify.

- a) $(-5)(+6) = -30$ b) $(+7)(-8) = -56$ c) $(-7)(-9) = 63$ d) $(+6)(+9) = 54$
 e) $(-12)(+5) = -60$ f) $(-3)(-13) = 39$ g) $(+8)(+9) = 72$ h) $(-5)(+5) = -25$
 i) $(-5)(-5) = 25$ j) $(+7)(-6) = -42$ k) $(+3)(+4) = 12$ l) $(-4)(-8) = 32$
 m) $(+6)(-7) = -42$ n) $(+4)(-7) = -28$ o) $(+9)(+3) = 27$ p) $(0)(-7) = 0$

Simplify.

- a) $(+16)(-5) = -80$ b) $(-18)(+3) = -54$ c) $(-14)(-4) = 56$ d) $(-17)(+9) = -153$
 e) $(-11)(+28) = -308$ f) $(+19)(+11) = 209$ g) $(+36)(+72) = 2592$ h) $(+47)(-16) = -752$
 i) $(-69)(-89) = 6141$ j) $(-74)(-18) = 1332$ k) $(+37)(-31) = -1147$ l) $(-44)(-22) = 968$

Simplify.

- a) $(-2)(+5)(-7) = -70$ b) $(-3)(-4)(-2) = -24$ c) $(+6)(-5)(+4) = -120$
 d) $(-1)(+3)(-3) = 9$ e) $(+2)(-3)(-3) = 18$ f) $(-2)(-2)(-3) = -12$
 g) $(+5)(-1)(-1)(-1) = -5$ h) $(-1)(-2)(-3)(-4) = 24$ i) $(-5)(+4)(+3)(-2) = 120$

Simplify.

- a) $(-2)(+3) + (-6)(-2) = 6$ b) $(-4)(-3) + (-1)(-2) = 14$
 c) $(-2)(-6) - (+5)(-2) = 22$ d) $(-3)(+7) - (+1)(+5) = -26$
 e) $(-2)(+8) - (-3)(-3) = -25$ f) $(+4)(-7) + (-8)(+6) = -76$
 g) $(-3)(+9) + (-2)(+7) = -4$ h) $(-7)(-9) - (-6)(-7) = 21$
 i) $(-2)(-2)(+1) + (-3)(-3)(-2) = -2$ j) $(-5)(-2)(-2) - (+2)(-1)(-1) = -22$

What must be true of two integers if their product is:

- a) positive Same sign b) negative different signs c) zero? 1 or 0

By comparing the answers in Exercise 3, what appears to be true for:

- a) the product of an even number of negative numbers; 15 +
 b) the product of an odd number of negative numbers; 15 -ve

Find the integer represented by each square.

- a) $(+5) \times \times = -20$ b) $(-2) \times \times = 16$ c) $\times \times (+7) = -56$ d) $\times \times (-6) = 54$ e) $(-8) \times \times = -72$ f) $\times \times (-12) = -96$
 g) $-32 = (+8) \times \times$ h) $48 = (-16) \times \times$ i) $-39 = \times \times (-13)$ j) $-15 \times \times = -75$ k) $\times \times 18 = -72$ l) $98 = (-7) \times \times$ m) -14

EXERCISES 1-5

1. Simplify.

- a) $(-48) \div (+4) = -12$ b) $(-36) \div (-4) = 9$ c) $(+32) \div (-8) = -4$
 d) $(-18) \div (+3) = -6$ e) $(-60) \div (-12) = 5$ f) $(-40) \div (-5) = 8$

2. Simplify.

- a) $\frac{-36}{4} = -9$ b) $\frac{46}{-2} = -23$ c) $\frac{-18}{-9} = 2$ d) $\frac{-85}{5} = -17$ e) $\frac{-49}{-7} = 7$
 f) $\frac{81}{-9} = -9$ g) $\frac{-76}{-19} = 4$ h) $\frac{-121}{11} = -11$ i) $\frac{132}{-12} = -11$ j) $\frac{91}{13} = 7$

3. Simplify.

- a) $\frac{(-4)(10)}{-8} = 5$ b) $\frac{(6)(-15)}{-5} = 18$ c) $\frac{(-10)(12)}{(5)(-3)} = 8$ d) $\frac{(-15)(-20)}{(-10)(3)} = -10$
 e) $\frac{(-50)(9)}{(15)(6)} = -5$ f) $\frac{(14)(-16)}{(-8)(-7)} = -2$ g) $\frac{(-5)(9)(-24)}{(-3)(4)} = 90$ h) $\frac{(-6)(-8)}{(-2)(-1)(-3)} = 8$

4. Simplify.

- a) $\frac{(-30)}{5} + \frac{15}{(-3)} = -11$ b) $\frac{(-20)}{10} + \frac{8}{(-2)} = -6$ c) $\frac{(-9)}{(-3)} - \frac{12}{4} = 0$
 d) $\frac{14}{(-2)} - \frac{(-16)}{8} = 5$ e) $\frac{(-36)}{4} + \frac{(-56)}{(-8)} = -2$ f) $\frac{(-42)}{7} - \frac{54}{(-6)} = 3$
 g) $\frac{(-63)}{(-7)} - \frac{(-56)}{(-8)} = 2$ h) $\frac{(-81)}{(-9)} + \frac{(-72)}{(-8)} = 18$ i) $\frac{35}{7} + \frac{48}{(-6)} = -3$

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- a) What does a negative balance of payments indicate? We *more* pay
 b) What was the average monthly balance of payments for each year?

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