

Integers

1) Explain in words what you will do when you see double signs in a simplification question.

2) Simplify each of the following by first eliminating all 'double signs'.

a) $(+6) + (-10) + (+3)$

b) $(-12) - (-9) + (-7)$

c) $(-8) + (+5) - (+3)$

d) $(-7) - (-10) - (-3)$

e) $(+8) - (-5) - (+4) + (-3)$

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

g) $(-4) + (-3) + (-6)$

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

i) $(+4) + (-3) - (-2) - (-2)$

j) $(-3) - (-4) + (-5) + (-8)$

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

l) $(+15) + (-14) - (-3) - (+24)$

3) Simplify each of the following.

a) $6 - 8 - 2$

b) $-4 - 0 + 4$

c) $15 - 7 - 13 + 9$

d) $-8 + 16 - 9 - 12$

e) $-9 + 6 - 11 - 40$

f) $10 - 11 + 12 - 13$

g) $14 - 21 - 7 - 14$

h) $1 - 7 + 6 - 12 - 3 + 4 + 11$

i) $3 - 8 + 4 - 11 =$

j) $4 - 12 + 3 - 2 + 7 =$

k) $14 - 20 + 8 - 12 =$

l) $4 - 12 + 16 - 3 =$

4) A work crew of 3 persons requires 3 weeks and 3 days to do a certain job. How long would it take a work crew of 4 persons to do the same job if they work at the same rate?

5) Lorraine bought a record collection for \$10, sold it for \$15, bought it back for \$20 and finally sold it for \$25. How much money did she make or lose?

6) Big Ben, London's largest clock, signals the time with loud bongs. If it takes 3 seconds to make 3 bongs at 3 o'clock, how many seconds will it take to make 6 bongs at six o'clock?

Answers:

1. answers vary 2a) -1 b) -10 c) -6 d) 6 e) 6 f) -13 g) -13 h) -4 i) 5 j) -12 k) 7 l) -20
3a) -4 b) 0 c) 4 d) -13 e) -54 f) -2 g) -28 h) 0 i) -12 j) 0 k) -10 l) 5

Additional Practice with Integers

Simplify.

a) $-5 - (2 - 3) + (4 - 7)$

c) $4(2 - 8) - 3(5 - 7)$

e) $5^2 - (4 - 9) + 6(2 - 3)$

g) $(-1)^2 + (-1)^3 + (-1)^4 + (-1)^5$

i) $(-1)^3 + (-1)^4 - (-1)^5 + (-1)^6$

k) $5 \times 3 - 4 \times (-7) - (5 - 8) + 16 \div (-4)$

l) $-8 \times 2 - 3 \times (5) - 2(3 - 4) - 25 \div (-5)$

m) $-8 \times 0 + 7 \times (-2) - (8 - 5) + 10 \div (-5)$

n) $-15 \div (-3) - 3 \times (-5) + 7(-1)^8$

o) $16 - (9 - 10) + (-1)^{127}$

p) $40 \div (5 - 13) - (-1)^{42}$

q) $\frac{16 - (5 - 7)}{5 - (-4)}$

r) $\frac{-3 - (-2) + (-5) - (+6)}{81 \div (-9) + 3(-1)^3}$

s) $\frac{8 \times (3 - 8) \div (-10)}{15 - (-3) + 4(-4)}$

t) $\frac{-(2 - 14) \div (-2)}{12 \div (3 - 6) + (-1)^{10}}$

b) $3 + (4 - 8) - (5 - 8)$

d) $5 - 2(4 - 3) + 7(1 - 3)$

f) $9(5 - 6) - (-1)^3$

h) $(-1)^2 - (-1)^3 - (-1)^4 - (-1)^5$

j) $(-1)^{11} - (-1)^{12} + (-1)^{13} - (-1)^{14}$

Answers:

a) -7	b) 2	c) -18
d) -11	e) 24	f) -8
g) 0	h) 2	i) 2
j) -4	k) 42	l) -24
m) -19	n) 27	o) 16
p) -6	q) 2	r) 1
s) 2	t) 2	

- 11) At 6 a.m. this morning, the temperature was -2°C . Every hour, the temperature increased by 3°C . What was the temperature at noon?
- 12) In a game called Integeresting, letters are worth a different number of points. Vowels are worth $+2$ each. Consonants from B to M are worth -3 each. Consonants from N to Z are worth -2 . The value of the word selected is found by:
- i) **Multiplying** the value of the first **three** letters.
 - ii) Taking this result away from the **sum** of the values of the remaining letters.

For example, the word MATHEMATICS would be worth $(-3)(+2)(-2)$ **taken away from** $(-3) + (+2) + (-3) + (+2) + (-2) + (+2) + (-3) + (-2)$ giving a final answer of -19 . (Note: I did NOT show all my work!)

- a) Find the value of the word ENGLISH showing ALL your work.
- b) Find a five-letter word, which gives a positive value.

Answers: 1) \$55 2) $-\$0.60$ 3a) $-2(12)$ b) $-2(-5)$ 4a) $3(8)$ b) $3(-14)$ 5) 36°C
 6) 73°C 7) $-5^{\circ}\text{C}/\text{min}$ 8) $-4^{\circ}\text{C}/\text{min}$ 9) 4 10a) 5 b) 6 11) 16°C 12a) -18

Integer Review

1) Write the integers in order from the smallest to the largest.

-8, 7, -9, 4, -2, 0 _____

2) Simplify each of the following.

a) $(+4) + (-3) =$ _____

b) $(-8) + (-2) =$ _____

c) $(-5) \times (-4) =$ _____

d) $(+7) \times (-3) =$ _____

e) $(-40) \div (-5) =$ _____

f) $(+54) \div (-6) =$ _____

g) $(-5) - (-8) =$ _____

h) $(+8) - (+12) =$ _____

i) $3 - 5 =$ _____

j) $-5 - 7 =$ _____

5) $\frac{(-14)}{(+7)} =$ _____

l) $(-5)(-3)(-1) =$ _____

3) Simplify.

a) $(-7) - (-2) + (-1) - (-3) + (+2)$

b) $(-1) - (+7) + (+3) + (-3) - (-8)$

c) $(-6) - (+3) + (-2) + (+5) - (-1)$

d) $13 - (5 - 7) + 2(4 - 5)$

e) $20 - (6 - 8) - 2(1 + 4)$

f) $6(-2) - 5 \times 0 + 3 \times -1$

g) $40 \div (-5) - 3 \times (-2) + 4 \times (-2)$

h) $16 \div (-8) \div (-2) - 8 + 3$

i) $45 \div (-9) - (+7) + (+2)$

j) $\frac{14 \div (-2) - (-5)}{8 + (4 - 10)}$

k) $\frac{(-1)^7 + 7 \times (-3)}{42 \div (-7) - (-4)}$

l) $\frac{-16 - 3 + 4 + 3}{-6 - (-2) + (+3) - (-4)}$

m) $\frac{-15 \div (-5) - (4 - 7) - 3(-4)}{20 - (5 - 8) + 2(-3) + (-1)^{12}}$

n) $\frac{5 - (-2) + (-1)^{11} + 24 \div (-3)}{5 \times (-1) - 12 \div (-3)}$

4) An elevator is on the sixth floor. It goes down four floors, then down three more floors, then up five floors, then down seven floors. At which floor is the elevator now? Support your answer with a single mathematical expression.

- 5) On an integer test, Chelsea gave the following response. What mark (out of three) would you give her. Justify your answer by circling (or commenting about) each of her errors (if she has any!). If the answer is incorrect, provide the correct response.

$$\frac{71 - (25 - 3 \times 6 + 4)}{(34 - 20 + 6) \div 2 \times 2}$$

$$\begin{aligned} &= 71 - (7 + 4) \\ &= 71 - 11 \\ &= 60 \end{aligned}$$

$$\begin{aligned} &= (34 - 26) \div 4 \\ &= 8 \div 4 \\ &= 2 \end{aligned}$$

$$= \frac{60}{2}$$

$$= 30$$

- 6) The temperatures for the last four days in Toronto were -8°C , 6°C , -3°C and -11°C . What was the average temperature?
- 7) The temperature on an airplane was 18°C . When the plane landed in Sudbury, the temperature was -11°C . What change in temperature did Madelaine experience as she exited from the plane directly onto the tarmac?

Answers:

1) -9, -8, -2, 0, 4, 7

2a) 1	b) -10	c) 20	d) -21	e) 8	f) -9
g) 3	h) -4	i) -2	j) -12	k) -2	l) -15
3a) -1	b) 0	c) -5	d) 13	e) 12	f) -15
g) -10	h) -4	i) -10	j) -1	k) 11	l) -4
m) 1	n) 2				

4) $-3 = P3$

5) question should not be separated into separate parts, order of operations error on the bottom portion: $34 - 20 + 6 = 14 + 6 = 20$, correct answer is 3.

6) -4°C

7) change in temperature = final temperature - initial temperature = -29°C