

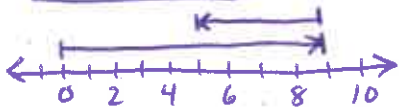
Unit 0: Review - Integers and Fractions

KEY

1) Evaluate the following:

$$9 + (-4) = x$$

$$5 = x$$



$$(-3) + 7 = x$$

$$4 = x$$

$$(-3) + (-4) = x$$

$$-7 = x$$

$$5 - (-3) = x$$

$$5 + 3 = x$$

$$8 = x$$

$$12 - 5 = x$$

$$7 = x$$

$$-4 - (-4) = x$$

$$-4 + 4 = x$$

$$0 = x$$

$$-3 + 2 = x$$

$$-1 = x$$

$$-6 - 1 = x$$

$$-7 = x$$

$$-9 + -8 = x$$

$$-17 = x$$

2) Calculate the following:

$$(+4) \times (-3) = x$$

$$-12 = x$$

$$(-2) \times (+6) = x$$

$$-12 = x$$

$$(-5) \times (-2) = x$$

$$10 = x$$

$$(-4) \times (-1) = x$$

$$4 = x$$

so he lost 5, that's -5.

3) Jake had a big wad of cash, but he paid Rogan \$5 for each hour that Rogan worked in his yard. If Rogan worked 4 hours, what was the overall change in Jake's wad of cash?

x = 4(-5)

x = -20

x = -\$20

4) Jerry can climb stairs at a rate of 6 steps per second. If it takes him 9 seconds to climb a flight of stairs, how many steps did he go up?

x = 6 x 9

x = 54

x = 54 steps

5) Every month, Joey spends \$70 on his cell phone plan. Represent this over the course of a year using integer multiplication.

12 months

x = 12(+70)

x = 840

x = \$840

he loses 70, so -70? or positive 70?

the spending = x

If you lose 70 dollars, we say you spent 70 dollars, not -70 dollars. So it should be positive.

6) Anakin borrows \$120 from Obi Wan to buy Padme a new tiara. He promises to pay it back over 4 months. Represent Anakin's money for each month.

x = -120 ÷ 4

x = -30

x = -\$30

MONTH	0	1	2	3	4
MONEY	120	90	60	30	0

Anakin loses \$30 each month.

7) It's very cold in space, and R2D2 has fallen out of the airlock. In 20 minutes, his temperature will drop by 40 degrees. What is his temperature change per minute?

-40

x

change can be up (+) or down (-). A drop is (-).

x = -40 / 20

x = -2

x = -2 degrees/minute

BEDMAS

8) Using **BEDMAS**, determine the following:

$$\begin{aligned} & (-10) \div (-2) - (+4) \times (+6) \\ & = 5 - (+4) \times (+6) \\ & = 5 - 24 \\ & = \boxed{-19} \end{aligned}$$

$$\begin{aligned} & (-16) \div [(+5) - (+6) + (-7)] \\ & = (-16) \div [(-1) + (-7)] \\ & = (-16) \div (-8) \\ & = \boxed{2} \end{aligned}$$

$$\begin{aligned} & (-3) + (-4) \times (-2) - (+6) \\ & = (-3) + (8) - (+6) \\ & = 5 - (+6) \\ & = \boxed{-1} \end{aligned}$$

$$\begin{aligned} & (-2) - (+4) \times (-5) \div (+2) \\ & = (-2) - (-20) \div (+2) \\ & = (-2) - (-10) \\ & = (-2) + 10 \\ & = \boxed{8} \end{aligned}$$

9) Can you predict whether: $\underbrace{(-) \times (-) \times (-)}_{(-)} - \underbrace{(-) \times (-) \times (-)}_{(-)}$ is positive or negative?

NO It depends on which number is bigger. If the first is bigger, it will be (-). If the second is bigger, it will be (+).

10) Johnny has \$4, he has to repay Gary \$3, but he collects \$7 from Karen. He goes to the roulette table and doubles his money. Write an equation to model this situation.

$$\begin{aligned} x &= (4 - 3 + 7) \times 2 \\ x &= (1 + 7) \times 2 \\ x &= 8 \times 2 \end{aligned} \quad \left| \quad \begin{aligned} x &= 16 \\ \boxed{x} &= \boxed{\$16} \end{aligned}$$

↳ the amount of money Johnny has = x.

11) A submarine climbs 50m in 40 seconds. How fast is it ascending? (Hint: How many metres per second?)

$$\begin{aligned} x &= 50 \div 40 \\ &= \frac{50}{40} \\ &= \frac{5}{4} \end{aligned} \quad \left| \quad \begin{aligned} x &= 1\frac{1}{4} \\ \boxed{x} &= \boxed{1.25 \text{ m/s}} \end{aligned}$$

12) For the past 6 weeks, Frederick has deposited \$30 every week. However, for the past 4 weeks, he has had to withdraw \$50. Using only addition statements, write an equation to show how much his bank balance has changed by.

$$x = 30 + 30 + 30 + (-50) + 30 + (-50) + 30 + (-50) + 30 + (-50)$$

$$x = 6(30) + 4(-50)$$

$$x = 180 + (-200)$$

$$x = -20$$

$$x = -\$20$$

13) Weather this week is cold. The daily temperatures were $(+3^\circ)$, (-1°) , $(+2^\circ)$, (-4°) , and $(+5^\circ)$. Determine the mean temperature.

↳ arithmetic average = x

$$x = \frac{(3) + (-1) + (2) + (-4) + (5)}{5}$$

$$x = \frac{5}{5}$$

$$x = 1$$

Game	+/- Rating
vs Calgary	-1
vs Ottawa	+4
vs Toronto	+3
vs Montreal	-2

14) +/- ratings are often used in sports. Kevin Biekse had the following ratings in his last 4 games: What is his total +/- for the game?

$$x = \frac{(-1) + (4) + (3) + (-2)}{4}$$

$$x = 4$$

$$x = \frac{4}{4}$$

$$x = +4$$

What was his mean +/- per game?

What would he need in his next game to get an average +/- of +2?

THINK! IT WOULD BE 5 GAMES.

$$\frac{4+x}{5} = 2$$

$$4+x = 10$$

$$x = 6$$

$$x = +6$$

15) Sami Salo currently has a +/- rating of +3. If he gets a -2 rating for each of the remaining games, how many games will he need to play in order to get a total rating of -9?

THINK!

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

$$-2x = -12$$

$$x = 6$$

$$x = 6 \text{ GAMES}$$

16) Over a ten-year period, the population of Saskatchewan decreased from 989 000 to 979 000. What was the mean population change per year?

$$x = \frac{979\,000 - 989\,000}{10}$$

$$x = -1\,000$$

* THIS WOULD BE
-1 000 people/year

$$x = \frac{-10\,000}{10}$$

17) The mean of five integers is -11. What is the sum of the integers?

$$\frac{x}{5} = -11$$

$$x = -55$$

18) Rohana earns \$50 a week from babysitting. She spends \$25, saves \$15, and uses the rest to repay a loan of \$100 from her sister.

a) After 6 weeks, how much has Rohana spent, how much has she saved, and how much does she still owe her sister?

$$\text{Spent} = 6(25)$$

$$= 150$$

$$= \$150$$

$$\text{Saved} = 6(15)$$

$$= 90$$

$$= \$90$$

$$\text{Owed} = 100 - 6(50 - 25 - 15)$$

$$= 100 - 6(10)$$

$$= 100 - 60$$

$$= 40$$

$$\text{Owed} = \$40$$

b) How many more weeks will Rohana take to pay off the loan?

$$x = 40 \div 10$$

$$x = 4$$

$$x = 4 \text{ weeks}$$

19) A small aircraft descended 90 m at 3 m/s and then descended 80 m at 2 m/s. For how much time did it descend altogether?

$$x = (90 \div 3) + (80 \div 2)$$

$$x = 30 + 40$$

$$x = 70$$

$$x = 70 \text{ seconds}$$

20) A fitness club charges its members \$250/year. If a member makes a single payment to pay for the next three years, there is a discount of \$5/month. How much is the single payment? THINK!

$$x = 3(250) - 3(12(5))$$

$$x = 750 - 3(60)$$

$$= 750 - 180$$

$$= 570$$

$$x = \$570$$