

Solutions

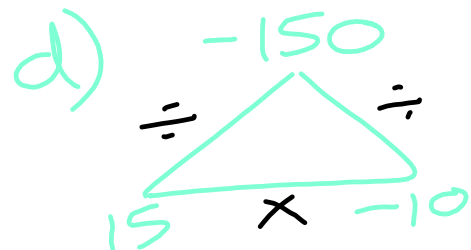
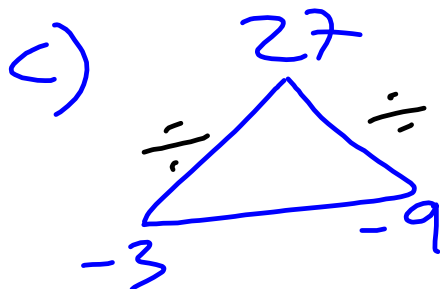
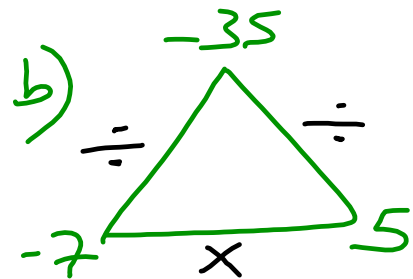
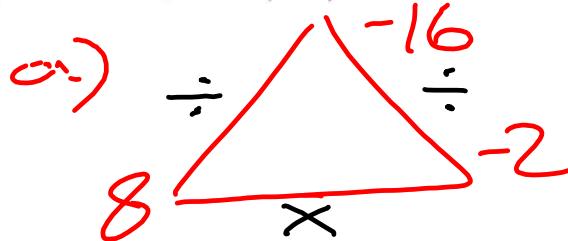
4. Draw a triangle for each multiplication statement. Then, write the related division statements.

a) $8 \times (-2) = -16$

b) $-7 \times 5 = -35$

c) $-3 \times (-9) = 27$

d) $15 \times (-10) = -150$



5. Find each quotient.

a) $12 \div 3$

b) $-18 \div (-2)$

c) $56 \div (-7)$

d) $-100 \div (-10)$

$$\begin{array}{ll} a) & 4 \\ c) & -8 \end{array} \quad \begin{array}{ll} b) & 9 \\ d) & 10 \end{array}$$

6. Divide.

a) $12 \div 3$

b) $-20 \div (-4)$

c) $\frac{-39}{3}$

d) $\frac{50}{-10}$

$$\begin{array}{ll} a) & 4 \\ c) & -13 \end{array} \quad \begin{array}{ll} b) & 5 \\ d) & -5 \end{array}$$

7. Copy each statement. Replace each ■ to make the statement true.

a) $48 = \blacksquare \times (-6)$

b) $-25 = \blacksquare \times (-5)$

c) $\blacksquare \times (-6) = -18$

d) $\blacksquare \times 10 = -60$

e) $-38 = \blacksquare \times 19$

f) $63 = \blacksquare \times (-9)$

a) $\frac{48}{-6} = -8$

b) $\frac{-25}{-5} = 5$

c) $\frac{-18}{-6} = 3$

d) $\frac{-60}{10} = -6$

e) $\frac{-38}{19} = -2$

f) $\frac{63}{-9} = -7$

8. A stock decreased in price by \$25 over 4 days.
What was the mean daily decrease in price?

$$= \frac{-25}{4} = -6.25$$

\Rightarrow decrease of \$6.25 per day

9. A diver rose a total of 30 m in 6 stages.
What was the mean rise per stage?

$$= \frac{30}{6} = 5 \text{ m per stage}$$

10. The temperature decreased by 10°C from 6 P.M. to 10 P.M. What was the mean hourly decrease in temperature?

$$10 \text{ pm} - 6 \text{ pm} = 4 \text{ hours}$$

$$\text{mean} = \frac{-10}{4} = -2.5$$

decrease of 2.5°C per hour

11. List all the integers that divide evenly into each.

a) -15

b) -24

$$\begin{array}{l} \text{a)} \quad 1 \times -15 \\ \quad -1 \times 15 \\ \quad 3 \times -5 \\ \quad -3 \times 5 \end{array}$$

$$\begin{array}{l} \text{b)} \quad 1 \times -24 \\ \quad -1 \times 24 \\ \quad 2 \times -12 \\ \quad -2 \times 12 \\ \quad 3 \times -8 \\ \quad -3 \times 8 \\ \quad 4 \times -6 \\ \quad -4 \times 6 \end{array}$$

12. Write an expression involving integer division for each situation. Evaluate each expression and state its meaning.

a) You owe your parents \$35, to be paid in five equal instalments. How much is each instalment?

$$\frac{-35}{5} = -7$$

Installments of \$7

b) The temperature dropped a total of 18°C over a 9-h period. What was the mean hourly temperature drop?

$$\frac{-18}{9} = -2$$

Mean hourly drop of 2°C

14. For a science project, Warren researched low temperatures in five Ontario cities.

City	Temperature ($^{\circ}\text{C}$)
London	-2
Thunder Bay	-12
Brockville	-6
Sudbury	-8
Sarnia	+1

a) Find the mean low temperature for these cities.

$$\frac{(-2) + (-12) + (-6) + (-8) + 1}{5}$$

$$= \frac{-27}{5} = -5.4^{\circ}\text{C}$$

b) If each temperature were actually 2°C warmer, how would it affect the mean?

It would also be 2°C lower.

$$\frac{-27 - 10}{5} = \frac{-37}{5} = -7.4^{\circ}\text{C}$$

15. Eleanor is tracking a whale. It descends at a steady rate of 120 m in 20 min.

- a) What is the whale's unit rate of descent?
b) How far does the whale descend in 10 min?

unit rate means
in "one minute"

$$a) \frac{-120}{20} = -6$$

$$\Rightarrow 6 \text{ m/min}$$

$$b) \text{ rate} \times \text{time}$$

$$= 6 \times 10$$

$$= 60 \text{ m}$$

c) How far does the whale descend in 16 min?

d) The whale needs to come to the surface to breathe after 45 min under water. How deep can it dive if it descends and ascends at the same steady rate?

$$c) \text{ rate} \times \text{time}$$

$$= 6 \times 16$$

$$= 96 \text{ m}$$

d) 45 mins under water.

$$\frac{45}{2} = 22.5 \text{ mins}$$

descending and the same ascending

$$\Rightarrow \text{rate} \times \text{time}$$

$$= 6 \times 22.5$$

$$= 135 \text{ m}$$

16. At midnight, the temperature in Iqaluit was -15°C . At noon, it was -5°C . What was the mean hourly increase in temperature from midnight to noon?

$$\text{Temp change} = (-5) - (-15) = 10^{\circ}\text{C}$$

$$\text{Time} = \text{noon} - \text{midnight}$$

$$\text{change} = 12 \text{ hours}$$

$$\text{Mean change} = \frac{10}{12} = 0.8\bar{3}^{\circ}\text{C}$$



17. Write a related division statement for each product. Then, write an example to go with it.

For example, for $8 \times (-2) = -16$:

$-16 \div (-2) = 8$: A diver dives 2 m/s. How long has she been diving when she is at a depth of 16 m?

- a) $9 \times (-5) = -45$ ••
- b) $-4 \times (-7) = 28$ •
- c) $-6 \times 6 = -36$ •

A diver dives at 5 m/s. How long has he been diving when he is at a depth of 45m?

Carl is paying back a debt to Gerald in 4 installments of \$7. How much will Gerald receive?

A diver dives at 6 m/s. What is her depth if she has been diving for 6 seconds?