

Lesson 101

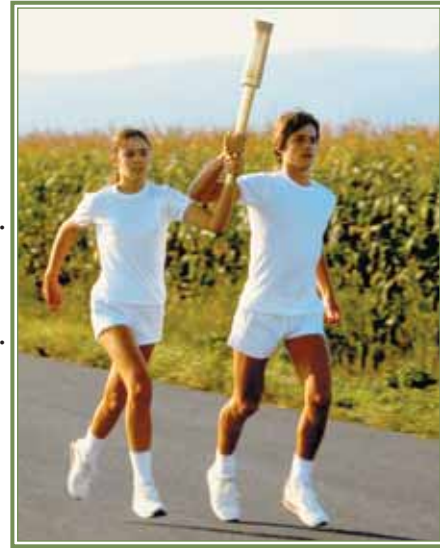


Construct Meaning

Eric Liddell was an athlete in the 1924 Olympics in Paris, France. The 100-meter race was his competition. It was scheduled for Sunday, but he did not believe in competing on the Lord's Day. He changed to the 400-meter race and set a new world record at 47.6 seconds. He had honored the Lord, and the Lord honored him.

How many times did Liddell run 100 meters in the 400-meter race?

The relationship between multiplication and division can be used to find quotients of integers.





$$4 \times 100 = 400$$

$$\text{QUOTIENT} \div \text{DIVIDEND} = \text{DIVISOR}$$

$$\begin{array}{rclcl} 400 & \div & 100 & = & 4 \\ 400 & \div & 4 & = & 100 \end{array}$$

He ran 100 meters four times.

Read the related division problems for $-2 \times (-3) = 6$.  $6 \div (-3) = -2$
 $6 \div (-2) = -3$

Read the related division problems for $-3 \times 4 = -12$.  $-12 \div 4 = -3$
 $-12 \div (-3) = 4$

Which sign do you use when dividing integers?

When the signs are the same, both positive or both negative, the quotient will be positive.

SAME SIGNS = POSITIVE QUOTIENT

$$\begin{array}{rcl} 42 \div 6 & = & 7 \\ -18 \div (-2) & = & 9 \end{array}$$

When the signs are different, one positive and one negative, the quotient will be negative.

DIFFERENT SIGNS = NEGATIVE QUOTIENT

$$\begin{array}{rcl} -28 \div 7 & = & -4 \\ 15 \div (-3) & = & -5 \end{array}$$

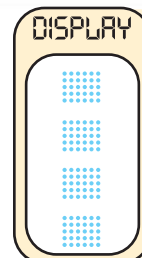
Use a calculator to find the quotient.

$$56 \div (-8)$$

$$238 \div 14$$

$$-180 \div 12$$

$$-84 \div (-4)$$



Check Understanding

Write the related division problems.

a. $6 \times (-2) = -12$

b. $9 \times 3 = 27$

c. $-30 \times (-5) = 150$

Write whether the quotient is *positive* or *negative*. Do not solve.

d. $-14 \div (-7)$

e. $25 \div (-5)$

f. $-8 \div 8$

Solve.

g. $-880 \div 10$

h. $63 \div (-7)$

i. $-75 \div (-25)$

Practice

Write the related division problems.

1. $6 \times 4 = 24$

2. $-4 \times (-5) = 20$

3. $-3 \times 6 = -18$

4. $9 \times (-8) = -72$

5. $7 \times 12 = 84$

Write whether the quotient is *positive* or *negative*. Do not solve.

6. $6 \div (-1)$

7. $-16 \div 4$

8. $-8 \div (-2)$

9. $18 \div 9$

10. $-36 \div 4$

Solve.

11. $-24 \div (-6)$

12. $0 \div (-2)$

13. $49 \div (-7)$

14. $-35 \div 5$

15. $-48 \div (-8)$

16. $-27 \div 3$

17. $-32 \div (-4)$

18. $60 \div 12$

19. $-28 \div (-14)$

20. $105 \div 5$

Apply

21. If x represents a positive number and y represents a negative number, will their product be positive or negative? Will their quotient be positive or negative?

22. For problems a–d use the chart to the right to find the difference in high temperatures of the cities. Notice the temperatures are measured on a Celsius thermometer, which measures a warm day as 29°C .

a. Saturday's high in Boulder and Chicago.

b. Saturday's high in Billings and Toronto.

c. Sunday's high in Toronto and Billings.

d. Sunday's high in Baltimore and Boulder.

e. Which day had the warmest recorded temperature?

f. Which day had the coolest recorded temperature?

	Saturday High	Sunday High
Baltimore, MD	10°C	15°C
Toronto, Canada	-2°C	-6°C
Chicago, IL	-5°C	3°C
Billings, MT	8°C	-7°C
Boulder, CO	11°C	4°C

Review

Rename as a mixed number.

1. $\frac{9}{5}$

2. $\frac{15}{4}$

3. $\frac{43}{6}$

Rename as an improper fraction.

4. $1\frac{2}{5}$

5. $9\frac{1}{3}$

6. $8\frac{1}{7}$

But now the Lord says: ... "for those who honor Me I will honor." I Samuel 2:30b