

Multiplying and Dividing Signed Numbers

Grade 7 math · Test Answer Key · Standards: 7.NS.A.2a, 7.NS.A.2b, 7.NS.A.2c

Use the scoring notes under each solution. Give partial credit when the size of the answer is right but the sign is wrong, and when a correct explanation is given with a small arithmetic slip.

Standards: 7.NS.A.2a, 7.NS.A.2b, 7.NS.A.2c · **Level:** Grade 7

Question 1 Multiplying Integers (2 points)

(a) $9 \times 8 = 72$, signs differ: -72 .

(b) $6 \times 12 = 72$, signs match: 72.

-72 and 72

Scoring: 1 point per part.

Question 2 Dividing Integers (2 points)

(a) $84 \div 7 = 12$, signs differ: -12 .

(b) $90 \div 15 = 6$, signs match: 6.

-12 and 6

Scoring: 1 point per part.

Question 3 Decimals and Fractions (3 points)

(a) $1.6 \times 0.45 = 0.72$, signs differ: -0.72 .

(b) $\frac{30}{45} = \frac{2}{3}$, signs match: $\frac{2}{3}$.

(c) $\frac{7}{8} \times (-\frac{2}{7}) = -\frac{14}{56} = -\frac{1}{4}$.

-0.72 ; $\frac{2}{3}$; $-\frac{1}{4}$

Scoring: 1 point per part.

Question 4 Number Line Jumps (3 points)

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

(b) $-20 \div 4 = -5$.

(c) The signs match, so the product is positive: $(-4)(-5) = 20$.

$4 \times (-5) = -20$; $-20 \div 4 = -5$; 20

Scoring: 1 point per part.

Question 5 Pattern of Products (3 points)

(a) 0, 6 and 12.

(b) Each result is 6 more than the one above it.

(c) The product of two negative numbers is positive.

Product	Result
$0 \times (-6)$	0
$(-1) \times (-6)$	6
$(-2) \times (-6)$	12

Results rise by 6 each row.

0, 6, 12; results rise by 6; negative times negative is positive

Scoring: 1 point per part.

Question 6 Retreating Glacier (3 points)

(a) $8 \times (-2.5) = -20$ meters.

(b) $(-2.5)(-6) = 15$, so the edge was 15 meters farther out.

(c) $-35 \div 14 = -2.5$ meters per month.

-20 m; +15 m; -2.5 m per month

Scoring: 1 point per part.

Question 7 Zero and Division (2 points)

(a) $0 \div (-13) = 0$.

(b) If $9 \div 0 = q$, then $q \times 0 = 9$, which is impossible because any number times 0 is 0.

0; undefined

Scoring: 1 point per part.

Question 8 Distributive Property (2 points)

Way 1: $5 - 9 = -4$, and $-6 \times (-4) = 24$.

Way 2: $-6 \times 5 - (-6) \times 9 = -30 + 54 = 24$.

24

Scoring: 1 point for each method.