

Grade 7 · Rational Numbers: Decimals, Fractions and Word Problems · Test Answer Key

Common Core 7.NS.A.2d, 7.NS.A.3 · mathovore.fr

Use these worked solutions and scoring guides to mark the test out of 20 points. Give credit for a correct method even when a small arithmetic slip follows, and watch especially for sign errors and for a missing bar on repeating decimals.

Grade 7 Common Core: 7.NS.A.2d · 7.NS.A.3

Question 1: Convert to decimals (2 points)

- a. $70 \div 16 = 4 \text{ r } 6$, $60 \div 16 = 3 \text{ r } 12$, $120 \div 16 = 7 \text{ r } 8$, $80 \div 16 = 5 \text{ r } 0$: **0.4375**.
b. $50 \div 12 = 4 \text{ r } 2$, $20 \div 12 = 1 \text{ r } 8$, $80 \div 12 = 6 \text{ r } 8$, and the remainder 8 repeats: $0.41\bar{6}$.

Scoring: 1 point for each part: correct digits from the division; in (b) the bar over only the 6 is required.

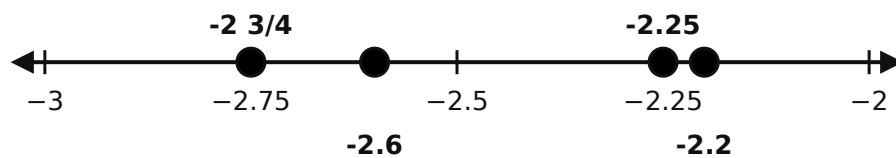
Question 2: Is it exact? (2 points)

$10 \div 6 = 1 \text{ r } 4$, $40 \div 6 = 6 \text{ r } 4$, and the remainder 4 repeats forever. The decimal does not stop, so Ethan is not correct: $\frac{1}{6} = 0.1\bar{6}$.

Scoring: 1 point for carrying out the division and seeing the repeated remainder (or noting that it never reaches 0); 1 point for the correct decimal $0.1\bar{6}$ with the bar.

Question 3: Order temperatures (2 points)

As decimals: -2.25 , -2.6 , -2.2 , -2.75 . The more negative a number is, the lesser it is:
 $-2.75 < -2.6 < -2.25 < -2.2$.



The four temperatures.

$-2\frac{3}{4}$, -2.6 , -2.25 , -2.2

Scoring: 1 point for converting all values to one form; 1 point for the correct order.

Question 4: Add and subtract (3 points)

- a. $7.35 - 4.8 = 2.55$, positive. **2.55**
- b. $-\frac{10}{12} - \frac{3}{12} = -\frac{13}{12}$. $-\frac{13}{12}$ (or $-1\frac{1}{12}$)
- c. $\frac{3 \times 4}{8 \times 9} = \frac{12}{72} = \frac{1}{6}$, positive because both factors are negative. $\frac{1}{6}$

Scoring: 1 point for each part. In (b) accept the mixed number; deduct nothing for an unsimplified fraction that is equal.

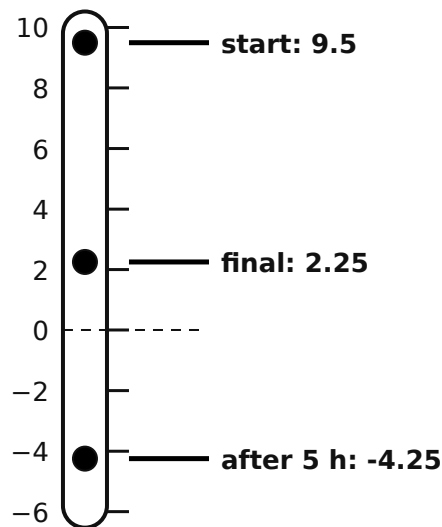
Question 5: Multiply and divide (3 points)

- a. $2.4 \div 0.8 = 3$, different signs. **-3**
- b. $-\frac{3}{4} \times \frac{10}{9} = -\frac{30}{36} = -\frac{5}{6}$. $-\frac{5}{6}$
- c. $-\frac{3}{2} \times \frac{8}{3} = -\frac{24}{6} = -4$. **-4**

Scoring: 1 point for each part: correct value and sign.

Question 6: Overnight cold (3 points)

- a. $5 \times (-2.75) = -13.75$.
- b. $9.5 - 13.75 = -4.25$.
- c. $-4.25 + 6.5 = 2.25$.



The three temperatures.

(a) -13.75°F **(b)** -4.25°F **(c)** 2.25°F

Scoring: 1 point for each part. Allow follow-through: a correct method on an earlier wrong value earns the point.

Question 7: Bank account (3 points)

- a. $-12.40 + 50.00 = 37.60$. **\$37.60**
- b. $3 \times 8.25 = 24.75$. **\$24.75**
- c. $37.60 - 24.75 = 12.85$. **\$12.85**

Scoring: 1 point for each part.

Question 8: Mean change (2 points)

Sum: $-1.50 + 0.75 = -0.75$; $-0.75 - 2.25 = -3.00$; $-3.00 + 1.00 = -2.00$. Mean: $-2.00 \div 4 = -0.50$.

The mean daily change is $-\$0.50$.

Scoring: 1 point for the sum of the four changes (-2.00); 1 point for dividing by 4 to get -0.50.

Total
20 points