

Fractions, Decimals and Rational Number Word Problems

Grade 7 math · Test Answer Key · Standards: 7.NS.A.2d, 7.NS.A.3

Use this scoring guide to mark each question. Award the listed points only for the stated step or result, and give partial credit for correct work carried through a single earlier slip. The total is 20 points.

Standards: 7.NS.A.2d, 7.NS.A.3 · **Level:** Grade 7

Question 1 Fractions to Decimals (2 points)

- a. $130 \div 16 = 8 \text{ r } 2$; $20 \div 16 = 1 \text{ r } 4$; $40 \div 16 = 2 \text{ r } 8$; $80 \div 16 = 5 \text{ r } 0$. So $\frac{13}{16} = \mathbf{0.8125}$.
 b. $80 \div 15 = 5 \text{ r } 5$; $50 \div 15 = 3 \text{ r } 5$, and remainder 5 repeats. So $\frac{8}{15} = \mathbf{0.5\overline{3}}$.

Scoring: 1 point per part; 1 point each for the correct division and result.

Question 2 Terminate or Repeat (2 points)

- a. $\frac{27}{60} = \frac{9}{20}$, and $20 = 2 \cdot 2 \cdot 5$, so it **terminates** (0.45).
 b. $\frac{11}{18}$ is in lowest terms and $18 = 2 \cdot 3 \cdot 3$ contains a 3, so it **repeats**.

Scoring: 1 point per part, for the right type with a valid reason.

Question 3 Mixed Forms Arithmetic (2 points)

- a. $-5.25 + 3.8 = \mathbf{-1.45}$.
 b. $-0.9 \times (-0.8) = \mathbf{0.72}$.

Scoring: 1 point per part.

Question 4 Order of Operations (2 points)

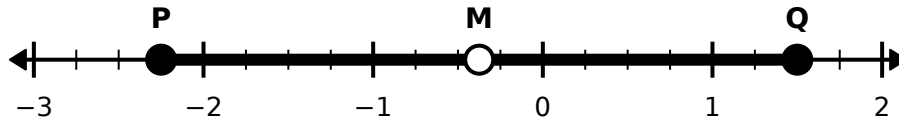
Divide first: $-0.375 \div (-1.5) = 0.25$. Then add: $2.25 + 0.25 = \mathbf{2.5}$.

Scoring: 1 point for the quotient, 1 point for the final sum.

Question 5 Distance on the Number Line (3 points)

$P = -2.25$ and $Q = 1.5$.

- a. Distance = $1.5 - (-2.25) = 3.75$. **3.75 units.**
- b. Midpoint = $(-2.25 + 1.5) \div 2 = -0.75 \div 2 = -0.375 = -\frac{3}{8}$. Check: $3.75 \div 2 = 1.875$ from each end.



The midpoint M lies at -0.375 .

Scoring: 1 point for part a; part b: 1 point for the sum, 1 point for halving and converting to a fraction.

Question 6 Freezer Power Outage (3 points)

- a. $-4.5 + 3 \times 2.75 = -4.5 + 8.25 = \mathbf{3.75^\circ F}$.
- b. Cooling: $2 \times 1.25 = 2.5$. Final: $3.75 - 2.5 = \mathbf{1.25^\circ F}$.
- c. Net change: $8.25 - 2.5 = \mathbf{+5.75^\circ F}$. Check: $-4.5 + 5.75 = 1.25$.

Scoring: 1 point per part.

Question 7 Eleven and a Repeating Pattern (3 points)

- a. $50 \div 11 = 4 \text{ r } 6$; $60 \div 11 = 5 \text{ r } 5$; $50 \div 11 = 4 \text{ r } 6$ again. The remainders 5 and 6 cycle, so $5/11 = \mathbf{0.45}$.
- b. Odd places hold 4 and even places hold 5. The 20th place is even, so the digit is **5**.

Scoring: part a, 1 point for correct divisions and 1 point for noticing the repeat; part b, 1 point.

Question 8 Robotics Club Budget (3 points)

- a. $-18.40 + 75 = \mathbf{\$56.60}$.
- b. $4 \times 9.35 = 37.40$. Then $56.60 - 37.40 = \mathbf{\$19.20}$.
- c. Kit = $19.20 \div 4 = 4.80$. Final: $19.20 - 4.80 = \mathbf{\$14.40}$.

Scoring: 1 point per part.