

Grade 7 - Solving Real-World Problems with Rational Numbers - Answer Key

Common Core 7.NS.A.3 · maths-pdf.fr/en/

Use this answer key to check your work on the rational number problems worksheet. Every solution shows the steps, and the final answer appears in bold. If your answer is different, compare each step and look for the first place where the work changes.

Grade 7 · Common Core State Standards: **7.NS.A.3**

Exercise 1 - Temperature change

Change = final - start: $-3.5 - 12.5 = -16$.

-16°F (a drop of 16 degrees)

Exercise 2 - Account activity

$$-14.50 + 60 = 45.50$$

$$45.50 - 22.75 = 22.75$$

\$22.75

Step	Balance
Start	-\$14.50
After deposit	\$45.50
After payment	\$22.75

Balance after each step.

Exercise 3 - Elevation gap

$$2340.5 - (-86.25) = 2340.5 + 86.25 = 2426.75$$

2,426.75 feet

Exercise 4 - Servings

$$2\frac{1}{2} \div \frac{3}{4} = \frac{5}{2} \times \frac{4}{3} = \frac{10}{3} = 3\frac{1}{3}.$$

Only whole servings count.

3 full servings

Exercise 5 - Golf scores

$$-3 + 2 - 1 + 4 = 2$$

+2 (two over par)

Exercise 6 - Complex fraction

$$\frac{3}{4} \div \frac{5}{8} = \frac{3}{4} \times \frac{8}{5} = \frac{24}{20} = \frac{6}{5}$$

$$1\frac{1}{5}$$

Exercise 7 - Mean temperature

$$\text{Sum: } -4 - 7.5 + 2 + 1.5 = -8.$$

$$-8 \div 4 = -2$$

-2°F

Day	Low
1	-4
2	-7.5
3	2
4	1.5
Mean	-2

The four lows.

Exercise 8 - Stock loss

$$-\frac{2}{5} \times 350 = -140$$

-\$140

Exercise 9 - Divide a debt

$$-75 \div 3 = -25$$

-\$25

Exercise 10 - Cutting boards

$$8\frac{1}{4} = \frac{33}{4} \text{ and } 1\frac{3}{8} = \frac{11}{8}.$$

$$\frac{33}{4} \div \frac{11}{8} = \frac{33}{4} \times \frac{8}{11} = 6$$

6 pieces

Exercise 11 - Ship and plane

$$|120.4 - (-45.6)| = 120.4 + 45.6 = 166$$

166 meters

Exercise 12 - Mixed forms

$$-\frac{3}{4} \times 8 = -6.$$

$$-6 + 2.5 = -3.5$$

-3.5

Exercise 13 - Grouping

Parentheses first: $-2.4 + 5.1 = 2.7$.

$$2.7 \times (-10) = -27$$

Exercise 14 - Phone plan

Charges: $3 \times 19.99 = 59.97$.

$$-8.40 - 59.97 + 25 = -43.37$$

-\$43.37

Item	Amount
Start	-\$8.40
3 charges	-\$59.97
Credit	+\$25.00
Final	-\$43.37

Account summary.

Exercise 15 - Dive and rise

Rise: $36.5 \div 4 = 9.125$.

$$-36.5 + 9.125 = -27.375$$

$$-27.375 - 3 = -30.375$$

-30.375 feet

Exercise 16 - Snack stand

$$\text{Total: } 45.50 - 12.25 - 30.80 + 18.40 = 20.85.$$

$$\text{Mean: } 20.85 \div 4 = 5.2125 \approx 5.21.$$

Total \$20.85; mean \$5.21 per day

Exercise 17 - Earn it back

$$\text{Earnings: } 12.50 \times 4.5 = 56.25.$$

$$-37.50 + 56.25 = 18.75$$

\$18.75

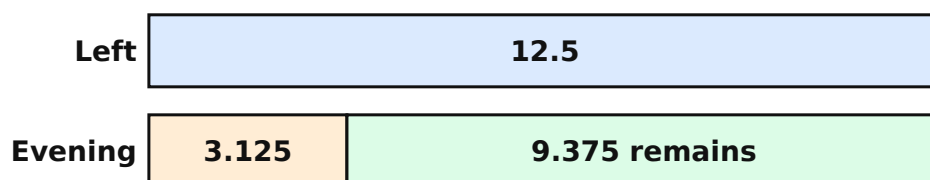
Exercise 18 - Water tank

Morning: $20 \times \frac{3}{8} = 7.5$, leaving 12.5 gallons.

Evening: $12.5 \times \frac{1}{4} = 3.125$.

$$12.5 - 3.125 = 9.375$$

9.375 gallons



Evening use.

Exercise 19 - Falling temperature

Total drop: $2\frac{1}{4} \times 3\frac{1}{2} = \frac{9}{4} \times \frac{7}{2} = \frac{63}{8} = 7\frac{7}{8}$.

$$5 - 7\frac{7}{8} = -2\frac{7}{8}$$

$$-2\frac{7}{8}^{\circ}\text{F}$$

Exercise 20 - Fabric cost

Unit cost: $9 \div \frac{3}{4} = 9 \times \frac{4}{3} = 12$ dollars per yard.

$$12 \times 2\frac{1}{3} = 12 \times \frac{7}{3} = 28$$

\$12 per yard; \$28