

Calculating Percent Change and Percent Error

Grade 7 math · Worksheet Answer Key · Standards: 7.RP.A.3

Each solution shows the change, the division by the starting or actual value, and the percent written clearly. Compare your denominator with the solution first, since that is where most mistakes begin.

Standards: 7.RP.A.3 · **Level:** Grade 7

Problem 1 Movie Ticket Increase

Change: $15.60 - 12.00 = 3.60$.

$3.60 \div 12 = 0.30 = 30\%$.

Answer: **30% increase**

Problem 2 Score Decrease

Change: $250 - 200 = 50$.

$50 \div 250 = 0.20 = 20\%$.

Answer: **20% decrease**

Problem 3 Class Growth

Increase: $0.15 \times 40 = 6$.

New enrollment: $40 + 6 = 46$.

Answer: **46 students**

Problem 4 Bike Price Reduction

Reduction: $0.125 \times 320 = 40$.

New price: $320 - 40 = 280$.

Answer: **\$280**

Problem 5 Measuring a Board

Error: $|48 - 50| = 2$ cm.

$2 \div 50 = 0.04 = 4\%$.

Answer: **4% error**

Problem 6 Town Population

Change: 300.

$300 \div 6,000 = 0.05 = 5\%$.

Answer: **5% increase**

Problem 7 Pay Before the Raise

New pay = 120% of old pay: $1.20 \times \text{old} = 540$.

Old pay: $540 \div 1.20 = 450$.

Answer: **\$450**

Problem 8 Jacket Before the Sale

Sale price = 70% of original: $0.70 \times \text{original} = 84$.

Original: $84 \div 0.70 = 120$.

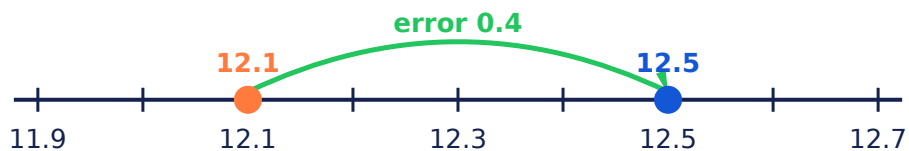
Answer: **\$120**

Problem 9 Percent Error on a Number Line

Error: $12.5 - 12.1 = 0.4$.

$0.4 \div 12.5 = 0.032 = 3.2\%$.

Answer: **3.2% error**



Error = 0.4, and $0.4 \div 12.5 = 3.2\%$.

Problem 10 Down Then Up

After the fall: $80 \times 0.75 = 60$.

After the rise: $60 \times 1.25 = 75$.

Overall change: $75 - 80 = -5$, and $5 \div 80 = 0.0625 = 6.25\%$.

Answer: **\$75; 6.25% decrease overall**

Problem 11 Which Plant Grew More

A: $3 \div 8 = 0.375 = 37.5\%$. B: $6 \div 20 = 0.30 = 30\%$.

B grew 6 inches and A grew 3 inches.

Answer: **Plant A has the greater percent growth (37.5% versus 30%); Plant B grew more inches**

Problem 12 Monthly Sales Changes

Jan to Feb: $250 \div 1,250 = 20\%$ increase.

Feb to Mar: $-150 \div 1,500 = 10\%$ decrease.

Jan to Mar: $100 \div 1,250 = 8\%$ increase.

Answer: **+20%, -10%, +8%**

Problem 13 Recipe with Fractions

Change: $1 - \frac{3}{4} = \frac{1}{4}$.

$\frac{1}{4} \div \frac{3}{4} = \frac{1}{3} = 33 \frac{1}{3}\%$.

Answer: **$33 \frac{1}{3}\%$ increase**

Problem 14 Attendance Estimate

Error: $2,025 - 1,800 = 225$.

$225 \div 2,025 \approx 0.1111 = 11.1\%$.

Answer: **about 11.1% error**

Problem 15 Population Over Two Years

Year 1: $25,000 \times 1.12 = 28,000$.

Year 2: $28,000 \times 0.95 = 26,600$.

Overall: $26,600 - 25,000 = 1,600$, and $1,600 \div 25,000 = 6.4\%$.

Answer: **26,600 residents; 6.4% increase overall**

Problem 16 Sofa Price Round Trip

Original: $690 \div 1.15 = 600$.

Discounted: $690 \times 0.85 = 586.50$.

Change: $586.50 - 600 = -13.50$, and $13.50 \div 600 = 0.0225 = 2.25\%$.

Answer: **\$600; \$586.50; 2.25% decrease**

Problem 17 Lab Scale Tolerance

(a) Error: $252 - 245 = 7$, and $7 \div 245 \approx 0.0286 = 2.9\%$.

(b) 2.9% is less than 3%, so yes.

(c) 3% of 245 = 7.35, so the largest acceptable reading is 252.35. Since $253 > 252.35$, no.

Answer: **2.9%; yes; no**

Problem 18 Video Views Growth

Change: 6,250, and $6,250 \div 12,500 = 50\%$.

Month 3: $18,750 \times 1.50 = 28,125$.

Answer: **50% increase; 28,125 views**

Problem 19 Two Price Cuts Compared

A: $18 \div 80 = 22.5\%$. B: $24 \div 120 = 20\%$.

The dollar cuts are \$18 and \$24.

Answer: **Store A has the greater percent decrease; Store B has the larger dollar cut**

Problem 20 Skis After Two Discounts

Multiplier: $0.65 \times 0.80 = 0.52$.

Original: $91 \div 0.52 = 175$.

Total discount: $1 - 0.52 = 0.48 = 48\%$.

Answer: **\$175; 48% total discount**



Working forward checks the answer.