Review 4 Decimals, Ratios, Rates, Proportions, and Percentages

Decimals

Addition (16)	Subtraction (16)	Multiplication (16)	Division (17)
Line up the decimals Add zeros as placeholders	Line up the decimals Add zeros as placeholders	Line up the last digits	Move the divisor's decimal to the right Move the dividend's decimal the same number of places
Add	Subtract	Multiply	Divide
Place the decimal in the answer	Place the decimal in the answer	Count decimal places in numbers being multiplied and place a decimal that number of places in the answer	Copy the decimal straight up into the answer
22.57 + 1.457 + 386.4 022.570 001.457 + 386.400 410.427	386.4 - 6.457 386.400 - 6.457 379.943	.322 x .03 .322 3 places x .03 2 places 966 Ans. .00966 5 places	.49 ÷ .7 .7) .4 9 4 9 0
Writing decimals as fractions (15)	**Writing fractions as decimals (17)**	**Rounding decimals (15)**	
Write fraction equivalent Divide Reduce if possible	Divide denominator into numerator Place a decimal in the answer Divide	Determine the required place value Copy all numbers before that place If the number to the place value's right is ≥ 5, round up If the number to the place value's right is < 5, do not round Exclude all numbers to the right of the required place value	
Express .4 as a fraction .4 means $\frac{4}{10}$ $\frac{4+2}{10+2} = \frac{2}{5}$	Express $\frac{1}{4}$ as a decimal $\frac{1}{4}$ means 1 ÷ 4 and .2 5 4) 1.0 0 add zeros 8 2 0 2 0 0	Round 1.4647 to the nearest tenth. tenths is the desired place value 1. 4 6 4 7 ≈ 1.5 because the number to the right is ≥ 5	

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Ratios, Rates, and Proportions

Ratios (18)	Rates (18)	Proportions (19 and 20)	
Ratios compare two like things.	Rates compare two unlike things.	A proportion exists when ratios are equal.	
5 feet to 2 feet as a ratio is (5:2).	$8 dollars for 1 hour is a rate.	The ratios 6:2 and 3:1 are in proportion because they are equal.	
Ratios must be in the same unit of measure. Express $2 to 25 cents as a ratio. $\frac{\$2}{25\text{ cents}} = \frac{200\text{ cents}}{25\text{ cents}}$ $= \frac{200+25}{25+25} = \frac{8}{1}$ or 8:1	Rates compare important relationships. Express traveling 200 miles in 4 hours as a rate. $\frac{200\text{ miles}}{4\text{ hours}} = \frac{50\text{ miles}}{1\text{ hour}}$ or 50 miles per hour	When proportions are written as fractions, their cross products are equal. $\frac{2}{6} = \frac{3}{9} \rightarrow \frac{2}{6} \times \frac{3}{9}$ and $2 \times 9 = 6 \times 3 \rightarrow 18 = 18$ **Note:** When two ratios are not in proportion, the position of the larger product indicates the larger fraction.	Proportions can be used to solve some interesting problems. The scale of a map uses 1 inch to represent 200 miles. How far apart are cities separated by 5 inches on this map? $\frac{1\text{ inch}}{5\text{ inches}} = \frac{200\text{ miles}}{x\text{ miles}}$ $1x = (5)(200)$ $x = 1{,}000$ miles

Percentages (21 and 22)

Writing fractions as percentages	Writing decimals as percentages	Writing percentages as fractions	Writing percentages as decimals
Multiply the fraction by $\frac{100\%}{1}$.	Multiply the decimal by 100%.	Multiply the percentage without its percent sign by $\frac{1}{100}$.	Multiply the percentage without its percent sign by .01.
$\frac{1}{5} \rightarrow \frac{1}{5} \times \frac{100\%}{1} = \frac{100\%}{5} = 20\%$	$.2 \rightarrow .2 \times 100\% = 20\%$	$3\% \rightarrow 3 \times \frac{1}{100} = \frac{3}{100}$	$3\% \rightarrow 3 \times .01 = .03$

Solving percent problems (23)	Finding the percent of change (24)
Percentages may be used to compare 2 numbers. One number represents the part, the other number represents the whole. 16 is what percent of 20? $\frac{\%}{100} = \frac{Part\ (is)}{Whole\ (of)}$ $\frac{x}{100} \times \frac{16}{20}$ $20x = 100(16)$ $20x = 1600$ $x = 80\%$	The change proportion is used to find percent of increase or percent of decrease. What is the percent of increase from 16 to 20? $\frac{\%}{100} = \frac{Change}{Original\ Number}$ $\frac{x}{100} = \frac{4}{16}$ $16x = 400$ $x = 25\%$ 20 is 25% larger than 16.

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