

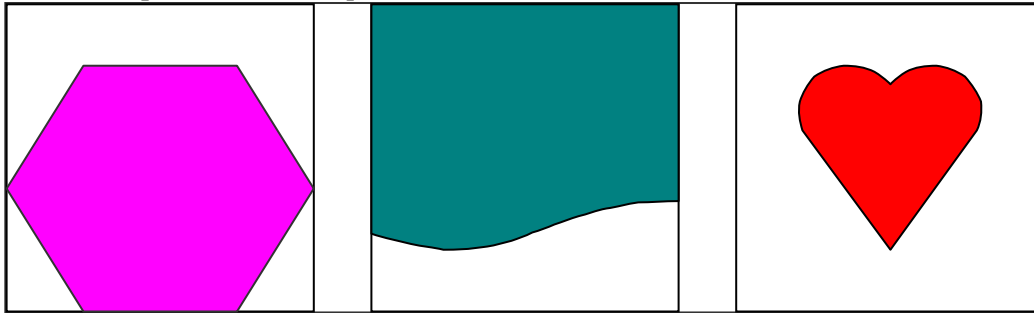
Math 365 Lecture Notes Section 6.4 – Percents

☆ Activity

Definition:

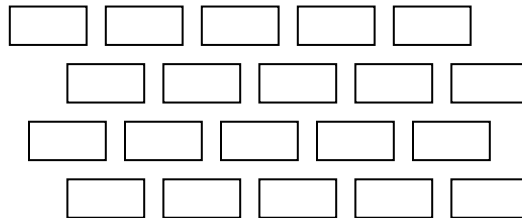
1) Percent:

1) Estimate the percent of each square that is shaded.



2) Shade 20% of the squares.

3) Put an X in 35% of the rectangles.
Put a Y in 25% of the rectangles.
Put a Z 15% of the rectangles.



☆ Percents And Their Decimal Equivalent

Example: Show (using fractions) how to convert each of the following percents to decimals.

a) 25%

b) 6.25%

c) $3\frac{4}{9}\%$

Conclusion: To convert a percent to a decimal, drop the percent sign and move the decimal point _____ places to the _____.

Example: Show (using fractions) how to convert each of the following decimals to percents.

a) 25.21

b) 0.062

c) $\frac{5}{8}$

Conclusion: To convert a decimal to a percent move the decimal point _____ places to the _____, and add the percent sign.

☆ Calculating Percents

Example: Solve the following using an equation and percent lines.

a) 12 out of 60 is what percent?

b) What is 20% of 60?

c) 12 is 20% of what number?

Example: Holly got 130 answers correct on a 180 question exam. What percent of the exam did Holly get correct?

Example: A clothing store is having a sale where every item in the store is thirty-five percent off the original price. How much will Andrea pay if she purchases a dress that is originally \$125?



★ Calculating Percent Increase and Percent Decrease

Example: Randy's salary increased from \$36,000 to \$37,260. What percent increase was he awarded?

Example: A car's retail price is found by marking its wholesale price up 30%. During a sale, the retail price is reduced by 20%. What percent higher is the sale price than the wholesale price?

Example: A \$75 dress is marked down 10% one week. The next week, an additional 25% is taken off the sale price. Find a single percent discount equal to these two successive discounts.

Example: A pair of shoes has just been reduced from \$80 to \$36.

- a) The new price is _____% less than the old price.
- b) The new price is _____% of the old price.
- c) The old price is _____% higher than the new price.
- d) The old price is _____% of the new price.

Example: The population of a certain city increased by 3% from 1998 to 1999 and then decreased by 3% from 1999 to 2000. By what percent did the population of the city change from 1998 to 2000?

Example: If sales tax is 8.25%, how much should you charge for an item so its total cost (including tax) is \$45?

★ **Mental Math with Percents**

1. Using fraction equivalents

Percent	25%	50%	75%	$33\frac{1}{3}\%$	$66\frac{2}{3}\%$	10%	1%
Fraction	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{10}$	$\frac{1}{100}$

Example: 75% of $\$840 =$
 $\frac{3}{4} \times 840 = 3 \times 210 = \630

2. Using a known percent

Example: 55% of $\$840 =$
 $50\% \times 840 + 5\% \text{ of } 840 =$
 $\frac{1}{2} \times 840 + \frac{1}{20} \times 840 =$
 $420 + 42 = \$462$

Example: Use this technique on your own to find 85% of 840 .

★ **Estimations with Percents**

Use estimations to determine if answers are reasonable.

1. Find the estimate of 27% of 895 .

2. Find the estimate of 148% of 895 .

★ **True or False**

1. Gary got a 10% raise after his first year on the new job, and a 10% raise after another year. His total raise was 20% of his original salary.

2. Sally paid 45% of her Visa bill (which had a balance due of $\$720$) and 48% of her Master Card bill (which had a balance due of $\$280$). Note: her balance on the two accounts was $\$1000$. She paid $45+48$ or 93% of the total bill.

3. Jerry spent 25% of his salary on food and 40% on rent. Jerry spent $25\% + 40\%$, or 65% of his salary on food and rent.

4. 55% of the residents work in Del Rio, and 35% of the residents work across the border in Mexico. 12% of the residents are unemployed.

5. 60% of the visitors to Del Rio cross the border to have lunch in Mexico. 25% of those whose crossed the border to have lunch in Mexico also shop and bring back souvenirs. That represent 15% of the visitors to Del Rio who shop for souvenirs in Mexico.

6. If 10% of 720 is 72, and 25% of 720 is 180, then 35% of 720 is 792.

7. A 15% tip for a dinner tab of \$45.00 is \$6.75.