MPM1D **Date:**

Day 13: Applying Percents

Lesson: Percents

Percent - is the number of parts per 100; the numerator of a fraction with a denominator of 100.

Write the following as fractions (in lowest terms)

Example 1:	Example 2:	Example 3:
13% $= \frac{13}{100}$	24% $= \frac{24}{100}$ GCF = 4 $= \frac{6}{25}$	125% $= \frac{125}{100}$ GCF: 25 $= \frac{5}{4}$

Write each percent as a decimal

Example 4:	Example 5:	Example 6:
20% = 0.20	2% = 0.02. = 0.02	134% = 134. = 1.34

Percent Problems

'of' in math means to multiply

'out of' in math means to divide

Example 7:

There were 25 apples. Molly took 20% of the apples home. How many apples did Molly take?

$25 \times 0.2 = 5$

∴ Molly has 5 apple,

Example 8:

Stephen spent 40% of his birthday money. He was given $145. How much does he have left?

$145 \times (100-40)\% = 145 \times 60\%$

$= 145 \times 0.6$

$= 87.$

∴ he has $87 left.

Example 9:

Nadiya achieved 45 out of 60 on her math test. What is this as a percent?

$\frac{45}{60} \times 100 = 75\%$

Example 10

An outfit is $34.95 and is on sale for 25% off. Taxes on this item are 13%. Calculate the total cost to purchase this item.

Price before tax : $\$34.95 \times (100-25)\%$

$= \$34.95 \times 75\%$

$= \$34.95 \times 0.75$

$= \$26.21$

Taxed Price $= \$26.21 \times (100+13)\%$

$= \$26.21 \times (113)\%$

$= \$29.62$ ∴ The total cost is $29.62

Practice: Percent

1. Write each percent as a decimal

a. 45%	b. 67%	c. 6%	d. 1%	e. 100%	f. 150%	g. 9.5%	h. 0.5%
= 0.45	= 0.67	= 0.06	= 0.01	= 1	= 1.5	= 0.095	= 0.005

2. Write each decimal as a percent

a. 0.23	b. 0.56	c. 0.79	d. 0.05	e. 0.235	f. 1.2	g. 0.006	h. 0.01
= 23%	56%	79%	5%	23.5%	120%	0.6%	1%

3. Write each fraction as a percent (to 1d.p)

a. $\frac{20}{100}$	b. $\frac{23}{50}$	c. $\frac{3}{4}$	d. $\frac{4}{9}$	e. $\frac{4}{5}$	f. $\frac{1}{3}$	g. $2\frac{2}{3}$	h. $\frac{3}{8}$
= 20%	= 46%	= 75%	= 44.4%	= 80%	= 33.3%	$= \frac{8}{3}$ = 266.7%	= 37.5%

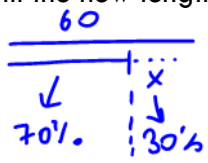
4. Evaluate:

a. 20 % of 250	b. 5% of $7.90	c. 8% of $400	d. 13% of 50 000
250 × 20 ÷ 100	= 7.90 × 0.05 ÷ 0.40	= 400 × 8 ÷ 100 = 32	= 50000 × 13 ÷ 100 = 6500

5. Express as a percent

a. 6 out of 10	b. 37 out of 50	c. 15 out of 60	d. 8 out of 80
$\frac{6}{10} = \frac{60}{100}$ = 60%	$\frac{37}{50} = \frac{74}{100}$ = 74%	$\frac{15}{60}$ = 25%	$\frac{8}{80}$ = 10%

6. Sonia has a picture that is 60cm long. She asked the photo shop to reduce the length by 30%. What will the new length be?



60 × 70% = 42 cm

∴ The new length is 42cm

7. Yangyang got 64 hits in 91 times at bat. What percent of the time did she get a hit? (round to 1d.p.)

$\frac{64}{91}$ = 70.3%

8. A calculator has a price of $260. The retailer first discounts 10% and then adds sales tax on 9%. Can we just do one calculation and discount 1%? Explain and show mathematical solution.

9. A dealer bought a used car for $6000. He marked the price up by 50% from what he paid for it. When he couldn't sell the car at this price, he marked it down by 40%. The car was bought. Did he make or lose money? How much?

Answers: 1)0.45; 0.67; 0.06; 0.01; 1.0; 1.5; 0.095; 0.005; 2) 23%; 56%; 79%; 5%; 23.5%; 120%; 0.6%; 1%
3) 20%; 46%; 75%; 44.4%; 80%; 33.3%; 266.7%; 37.5% 4) 50; $0.40; $32; 6500
5) 60%; 74%; 25%; 10% 6) 42cm long, 7) 70.3%
8) [1%disc=$257.40] [10%dis+9%tax=$255.06] They are not the same. You must do separately. 9)Loss of $600