

Learning Objective:

To be able to convert between percentages and fractions

□ Do Now:

Simplify:

$$\square 4y^2 - 4y + 6y^2 + 8y \quad 10y^2 + 4y$$

$$\square 7t^2 - 4t - 3t^2 + 7t \quad 4t^2 + 3t$$

Percentage to Fraction Examples

□ Convert 75% to a fraction.

$3/4$

□ Convert 25.5% to a fraction.

$51/200$

Fluency Answers

Question 1: Write each of the following percentages as fractions.
If possible, simplify each answer.

(a) 3% $\frac{3}{100}$ (b) 14% $\frac{7}{50}$ (c) 66% $\frac{33}{50}$ (d) 10% $\frac{1}{10}$

Question 2: Write each of the following percentages as fractions.
If possible, simplify each answer.

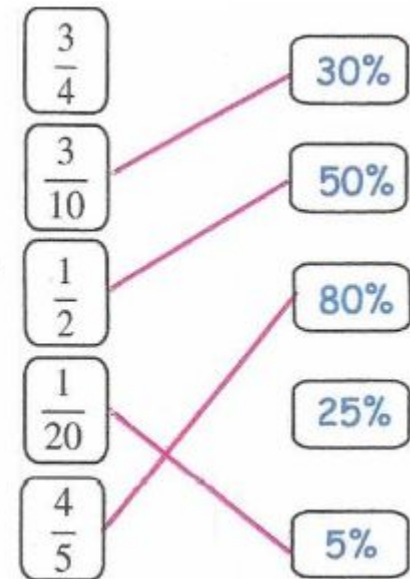
(a) 111% $\frac{111}{100}$ (b) 130% $\frac{13}{10}$ (c) 150% $\frac{3}{2}$ (d) 110% $\frac{11}{10}$

Question 3: Write each of the following percentages as fractions.
If possible, simplify each answer.

(a) 12.5% $\frac{1}{8}$ (b) 0.2% $\frac{1}{500}$ (c) 1.8% $\frac{9}{500}$ (d) 15.2% $\frac{19}{125}$

Apply Answers

Question 1: Match up any fraction and percentage that are equivalent.
Not all the fractions and percentages will match up.



Question 2: 10% of the world are left handed.
What fraction of the world are right handed?

$$\frac{9}{10}$$

Question 3: 32% of people voted for the Yellow Party in an election.
What fraction of people voted for the Yellow Party?

$$\frac{8}{25}$$



Apply Answers

Question 4: Rebecca spent 85% of her pocket money this week.
What fraction of her pocket money did she spend?

$$\frac{17}{20}$$

Question 5: Neil got 52% of questions correct on a test.
What fraction of questions did he get correct?

$$\frac{13}{25}$$

Question 6: In a school, students either study French, German or Spanish.
They study one language each.
11% of students study French
27% of students study Spanish
What fraction of the students study German?

$$\frac{31}{50}$$




Fraction to Percentage Examples

Calculator Question

$$\frac{9}{40} = 9 \div 40 \times 100 = 22.5\%$$

Non-Calculator
Question

$$\frac{10}{25} = \frac{40}{100} = 40\%$$


x 4

Fluency Answers

Question 1

(a) 18%

(b) 30%

(c) 80%

Question 2:

(a) 37.5%

(b) 80%

(c) 6.5%

Question 3:

(a) 12.5%

(b) 42.5%

(c) 31.25%

Question 4:

(a) 66.6%

(b) 44.4%

(c) 26.6%

Apply Answers

Question 1:
15%

Question 5:
87.5%

Question 2:
78%

Question 6:
95%

Question 3:
28%

Question 7:
28.2%

Question 4:
35%

Learning Objective:

To be able to convert between fractions and decimals

□ Do Now:

Simplify:

$$\square 7v^2 + 5v + 7v^2 + 8v \quad 14v^2 + 13v$$

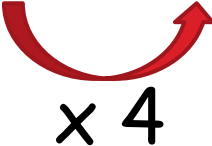
$$\square 5k^2 + 9k + 2k^2 + 9k \quad 7k^2 + 18k$$

Fraction to Decimal Examples

Calculator Question

$$\frac{9}{40} = 9 \div 40 = 0.225$$

Non-Calculator
Question

$$\frac{10}{25} = \frac{40}{100} = 40 \div 100 = 0.4$$


Fluency Answers

Question 1:

(a) 0.5 (b) 0.25 (c) 0.75

Question 2:

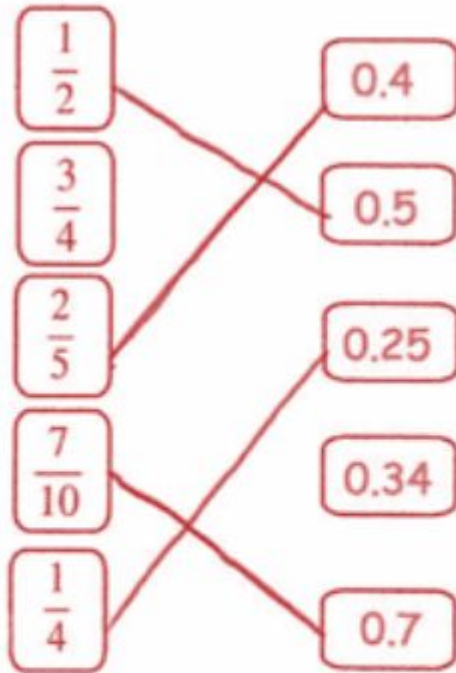
(a) 0.125 (b) 0.35 (c) 0.625

Question 3:

(a) 1.5 (b) 1.25 (c) 5.5

Apply Answers

Question 1:



Question 2: 0.65 is larger as $\frac{3}{5}=0.6$.

Question 3: $\frac{7}{10}$, $\frac{3}{4}$, 0.77, $\frac{4}{5}$, 0.9

Apply Answers

Question 4: 0.65

Question 5:

Write $\frac{4}{5}$ as a decimal.

$$5 \overline{) 4.00}$$

$$4 \overline{) 5.00} \begin{matrix} 1.25 \\ 1 \\ 2 \end{matrix}$$

Answer: 1.25

Leen worked out 5:4 not 4:5

Write $\frac{3}{20}$ as a decimal.


$$20 \overline{) 3.000} \begin{matrix} 0.15 \\ 3 \\ 10 \end{matrix}$$

should be a 10; not 1.
Answer: 0.15 $100 \div 20 = 5$


$$20 \overline{) 3.00} \begin{matrix} 0.15 \\ 3 \\ 10 \end{matrix}$$

Decimal to Fraction Examples

□ $0.44 = \frac{44}{100} = \frac{11}{25}$



□ $2.35 = \frac{235}{100} = 2 \frac{35}{100} = 2 \frac{7}{20}$



Fluency Answers

Question 1

(a) $\frac{1}{2}$

(b) $\frac{3}{10}$

(c) $\frac{7}{10}$

Question 2:

(a) $\frac{123}{1000}$

(b) $\frac{201}{500}$

(c) $\frac{169}{250}$

Question 3:

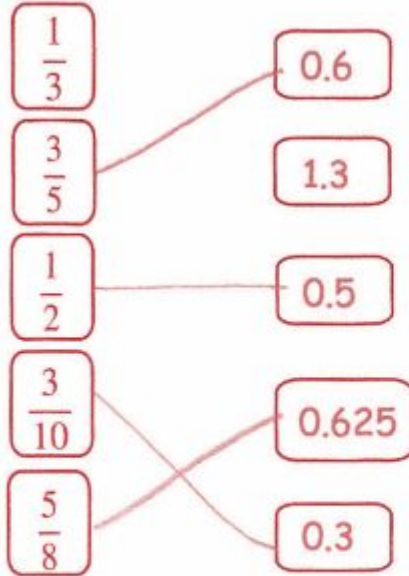
(a) $\frac{13}{10}$ or $1\frac{3}{10}$

(b) $\frac{19}{10}$ or $1\frac{9}{10}$

(c) $\frac{7}{5}$ or $1\frac{2}{5}$

Apply Answers

Question 1:



Question 2:

(Q1) The answer has not been left in its simplest form. $\frac{6}{10} = \frac{3}{5}$

(Q2) 0.08 as a fraction is $\frac{2}{25}$

(Q3) They have mixed up the order of the numbers, $0.092 = \frac{46}{500}$, 0.902 as a fraction is $\frac{451}{500}$

Learning Objective:

To be able to convert between percentages and decimals

□ Do Now:

Simplify:

$$\square 7f^2 + 6f + 7f^2 + 6f \quad 14f^2 + 12f$$

$$\square 7f^2 + 3f + 7f^2 + 5f \quad 14f^2 + 8f$$

Percentage to Decimal Examples

- $8.5\% = 8.5 \div 100 = 0.085$
- $250\% = 250 \div 100 = 0.8$

Fluency Answers

Question 1:

(a) 0.53 (b) 0.19 (c) 0.25 (d) 0.74

Question 2:

(a) 0.152 (b) 0.235 (c) 0.903 (d) 0.6281

Question 3:

(a) 1.62 (b) 1.9 (c) 1.15 (d) 1.44

Apply Answers

Question 1:

$$80\% = 0.8$$

$$25\% = 0.25$$

$$8\% = 0.08$$

$$250\% = 2.5$$

$$30\% = 0.3$$

Question 2:

(a) 3%, 16%, 0.2, 21%, 0.25

(b) 3%, 0.05, 64%, 0.99, 100%, 1.25

Question 3: James is correct, it is possible to have percentages greater than 100%.

Decimal to Percentage Examples

- $0.125 = 0.125 \times 100 = 12.5\%$
- $0.35 = 0.35 \times 100 = 35\%$
- $1.2 = 1.2 \times 100 = 120\%$

Fluency Answers

Question 1:

(a) 25%

(b) 75%

(c) 13%

(d) 88%

Question 2:

(a) 12.5%

(b) 95.3%

(c) 38.2%

(d) 60.3%

Question 3:

(a) 33.3%

(b) 66.6%

(c) 47.47%

(d) 80.80%

Question 4:

(a) 163%

(b) 125%

(c) 180%

(d) 101%

Apply Answers

Question 1:



Question 2:

- (a) 0.09, 20%, 0.4, 45%, 0.5
- (b) 13%, 20%, 0.59, 0.8, 85%
- (c) 25%, 29%, 0.3, 0.33, 35%

Question 3:

Counter examples:

0.2 does not equal 2%

0.201 does not equal 201%

Question 4:

0.306 = 30.6% which is less than 31%

Learning Objective:

To be able to order fractions, decimals and percentages

□ Do Now:

Simplify:

$$\square 8k^2 - 5k + 7k^2 - 6k \quad 15k^2 - 11k$$

$$\square 4i^2 - 5i - 5i^2 - 4i \quad -i^2 - 9i$$

Think, Pair and Share

Fraction	Decimal	Percentage
1/2		
	0.75	
		20%
1/8		
	0.93	
1/50		
		4%

Example

87% 0.871 $\frac{1}{2}$ $\frac{2}{3}$ 0.57

Step 1: Turn all the figures into decimals

Step 2: Put the decimals in order from smallest to largest

Step 3: Turn the figures back to their original form

0.87 0.871 0.5 0.67 0.57

0.5 0.57 0.67 0.87 0.871

$\frac{1}{2}$ **0.57** **$\frac{2}{3}$** **87%** **0.871**

Think, Pair and Share

56% $\frac{3}{4}$ 0.871 23% $\frac{6}{7}$

Step 1: Turn all the figures into decimals

Step 2: Put the decimals in order from smallest to largest

Step 3: Turn the figures back to their original form

0.56 0.75 0.871 0.23 0.86

0.23 0.56 0.75 0.86 0.871

23% **56%** **$\frac{3}{4}$** **$\frac{6}{7}$** **0.871**

Questions

- Order the following from smallest to largest:

1)	0.22	$1/10$	0.34	$2/3$	0.903
2)	$1/10$	0.507	0.320	$7/9$	0.12
3)	$1/2$	45%	0.9	$4/10$	0.3
4)	0.67	61%	$6/10$	0.067	0.601
5)	1.45	142%	$3/2$	107%	1.024
6)	1.92	$7/3$	193%	1.899	$5/2$
Challenge 1:	0.003	$3/100$	0.03%	$3/10$	0.303%
Challenge 2:	$7/4$	74%	7.4	$4/7$	70.4

Answers

1)	$1/10$	0.22	0.34	$2/3$	0.903
2)	$1/10$	0.12	0.320	0.507	$7/9$
3)	0.3	$4/10$	45%	$1/2$	0.9
4)	0.067	$6/10$	0.601	61%	0.67
5)	1.024	107%	142%	1.45	$3/2$
6)	1.899	1.92	193%	$7/3$	$5/2$
Challenge 1:	0.03%	0.303%	0.003	$3/100$	$3/10$
Challenge 2:	$4/7$	74%	$7/4$	7.4	70.4