

Learning Objective:

To be able to convert between percentages and fractions

□ Do Now:

Simplify:

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

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

Percentage to Fraction Examples

□ Convert 75% to a fraction.

3/

4

□ Convert 25.5% to a fraction.

51/20

0

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.

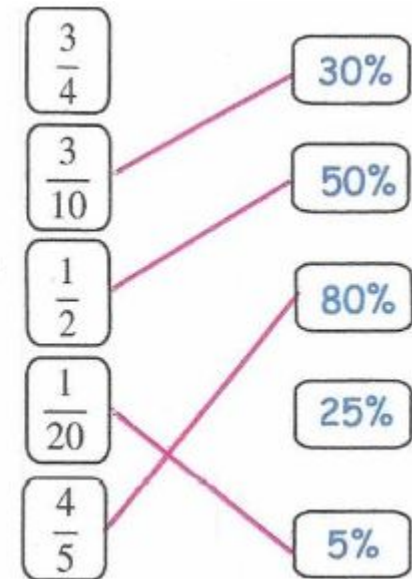
- (a) 111% $\frac{111}{100}$ (b) 130% $\frac{13}{10}$ (c) 150% $\frac{3}{2}$ (d) 110% $\frac{11}{10}$

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

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


$\times 4$

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:

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

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

Fraction to Decimal Examples

Calculator Question

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

Non-Calculator
Question

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


x 4

Fluency Answers

Question 1:

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

Question 2:

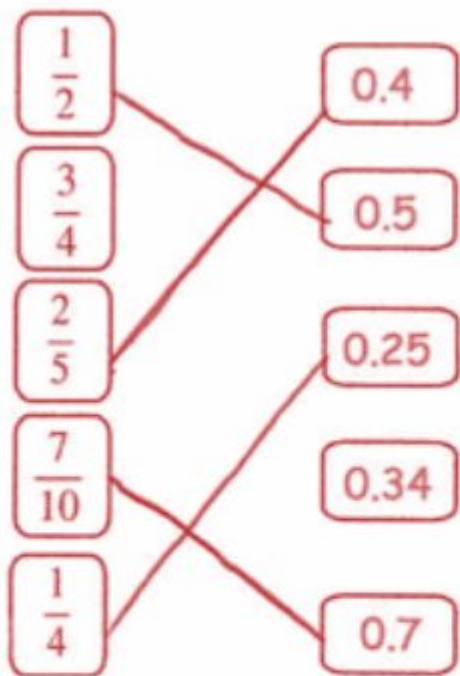
(a) 0.125 (b) 0.35 (c) 0.625

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.

$$\begin{array}{r} 0.8 \\ 5 \overline{) 4.0} \end{array}$$

$$\begin{array}{r} 1.25 \\ 4 \overline{) 5.00} \end{array}$$

Answer: 1.25

Leen worked at $5 \div 4$ not $4 \div 5$

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

$$\begin{array}{r} 0.105 \\ 20 \overline{) 3.000} \end{array}$$

should be a 10, not 1.
Answer: 0.105 $100 \div 20 = 5$

$$\begin{array}{r} 0.15 \\ 20 \overline{) 3.00} \end{array}$$

Decimal to Fraction Examples

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



A blue curved arrow points from the 44 in the numerator to the 25 in the denominator, with a $\div 4$ below it, indicating the simplification step.

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



A blue curved arrow points from the 35 in the numerator to the 20 in the denominator, with a $\div 5$ below it, indicating the simplification step.

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:

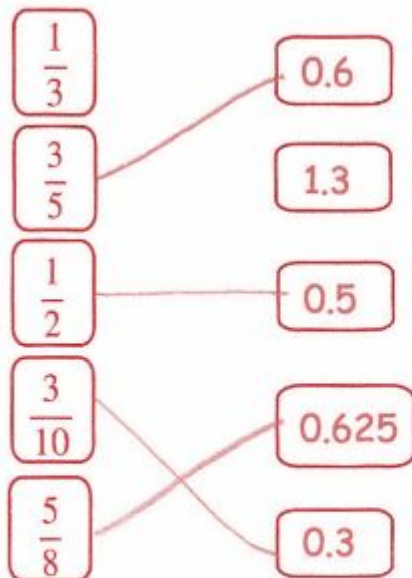
(a) $\frac{13}{10}$ or $1\frac{3}{10}$

(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:

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

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

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:

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

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

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