

Name _____

Date _____

10.1 Fractions, decimals and percentages — worksheet

Convert between fractions, decimals and percentages, and use the conversions to compare quantities. · 72 questions · Show your working.

Remember

- **Per cent** means *out of a hundred*. 45% is 45 out of every 100.
- Percentage → decimal: **divide by 100**. $35\% = 0.35$.
- Decimal → percentage: **multiply by 100**. $0.35 = 35\%$.
- Percentage → fraction: put it over 100 and simplify. $45\% = 45/100 = 9/20$.
- Fraction → percentage: divide, then multiply by 100. $3/8 = 0.375 = 37.5\%$.
- Learn the common ones by heart: $1/2$, $1/4$, $3/4$, $1/5$, $1/10$, $1/8$.
- To **compare**, convert everything to one form — percentages are usually easiest.
- A percentage can be more than 100. 150% of 20 is 30.

A · Fluency — Convert between the three forms.

- 1 Write $\frac{1}{2}$ as a percentage. Give the number only.

- 2 Write $\frac{1}{4}$ as a percentage. Give the number only.

- 3 Write $\frac{3}{4}$ as a percentage. Give the number only.

- 4 Write $\frac{1}{5}$ as a percentage. Give the number only.

- 5 Write $\frac{2}{5}$ as a percentage. Give the number only.

- 6 Write $\frac{3}{5}$ as a percentage. Give the number only.

- 7 Write $\frac{4}{5}$ as a percentage. Give the number only.

- 8 Write $\frac{1}{10}$ as a percentage. Give the number only.

- 9 Write $\frac{3}{10}$ as a percentage. Give the number only.

- 10 Write $\frac{7}{10}$ as a percentage. Give the number only.

- 11 Write $\frac{9}{10}$ as a percentage. Give the number only.

12 Write $\frac{1}{100}$ as a percentage. Give the number only.

13 Write $\frac{1}{20}$ as a percentage. Give the number only.

14 Write $\frac{3}{20}$ as a percentage. Give the number only.

15 Write $\frac{1}{25}$ as a percentage. Give the number only.

16 Write 50% as a decimal.

17 Write 25% as a decimal.

18 Write 75% as a decimal.

19 Write 20% as a decimal.

20 Write 40% as a decimal.

21 Write 60% as a decimal.

22 Write 80% as a decimal.

23 Write 10% as a decimal.

24 Write 30% as a decimal.

25 Write 70% as a decimal.

26 Write 90% as a decimal.

27 Write 1% as a decimal.

28 Write 5% as a decimal.

29 Write 15% as a decimal.

30 Write 4% as a decimal.

31 Write 50% as a fraction in its simplest form.

32 Write 25% as a fraction in its simplest form.

33 Write 75% as a fraction in its simplest form.

34 Write 20% as a fraction in its simplest form.

35 Write **40%** as a fraction in its simplest form.

36 Write **60%** as a fraction in its simplest form.

37 Write **80%** as a fraction in its simplest form.

38 Write **10%** as a fraction in its simplest form.

39 Write **30%** as a fraction in its simplest form.

40 Write **70%** as a fraction in its simplest form.

41 Write **0.35** as a percentage. Give the number only.

42 Write **0.08** as a percentage. Give the number only.

43 Write **0.125** as a percentage. Give the number only.

44 Write **0.6** as a percentage. Give the number only.

45 Write **0.045** as a percentage. Give the number only.

46 Write **1.2** as a percentage. Give the number only.

47 Write **0.375** as a percentage. Give the number only.

48 Write **0.02** as a percentage. Give the number only.

B · Reasoning — What per cent really means.

49 What does **per cent** mean?

- ☐ Per hundred
- ☐ Per ten
- ☐ Per thousand
- ☐ Per part

50 How do you turn a decimal into a percentage?

- ☐ Divide by 100
- ☐ Multiply by 100
- ☐ Add 100
- ☐ Subtract 100

51 How do you turn a percentage into a decimal?

- ☐ Multiply by 100
- ☐ Divide by 100
- ☐ Add a point
- ☐ Subtract 100

- 52** Why is 50% the same as $\frac{1}{2}$?
- ☐ They look alike
 - ☐ 50 out of 100 simplifies to 1 out of 2
 - ☐ $50 \div 2 = 25$
 - ☐ They are not the same
- 53** Can a percentage be more than 100?
- ☐ No, never
 - ☐ Yes — it means more than the whole
 - ☐ Only for money
 - ☐ Only in decimals
- 54** Is 0.7 the same as 7%?
- ☐ Yes
 - ☐ No
- 55** Is $\frac{1}{8}$ equal to 12.5%?
- ☐ Yes
 - ☐ No
- 56** Which is largest: 0.6, 55% or $\frac{3}{5}$?
- ☐ 0.6
 - ☐ 55%
 - ☐ $\frac{3}{5}$
 - ☐ 0.6 and $\frac{3}{5}$ are equal and largest
- 57** What is the quickest way to compare a fraction, a decimal and a percentage?
- ☐ Guess
 - ☐ Convert them all to the same form
 - ☐ Compare the top numbers
 - ☐ Add them

C · Challenge — Awkward denominators and ordering.

- 58** Write $\frac{3}{8}$ as a percentage. Give the number only.
-
- 59** Write $\frac{5}{8}$ as a percentage. Give the number only.
-
- 60** Write $\frac{7}{20}$ as a percentage. Give the number only.
-
- 61** Write 45% as a fraction in its simplest form.
-
- 62** Write 12.5% as a fraction in its simplest form.
-
- 63** Put these in order, smallest first, and give the largest: 0.45, 42%, $\frac{9}{20}$. Give the answer as a percentage number.
-

64 What percentage is $\frac{1}{3}$, to 1 decimal place?

D · Word problems — Scores, charges and offers.

65 A test is marked out of 100 and a learner scores 68. What percentage is that?

66 A learner gets 17 out of 20. What percentage is that?

67 A shirt is 40% cotton. What fraction is that, in its simplest form? Give the denominator.

68 $\frac{3}{4}$ of a class walk to school. What percentage is that?

69 A battery shows 0.35 charge. What percentage is that?

70 A survey finds $\frac{9}{25}$ prefer tea. What percentage is that?

71 A phone is 80% charged. What decimal is that?

72 A shop says “up to $\frac{1}{5}$ off”. What percentage is that?
