

Fractions to Decimals to Percentages: the chart, the six conversions and a 30-question worksheet

The chart to know by heart

Fraction	Decimal	Percentage	Fraction	Decimal	Percentage
1/2	0.5	50%	1/8	0.125	12.5%
1/4	0.25	25%	3/8	0.375	37.5%
3/4	0.75	75%	5/8	0.625	62.5%
1/5	0.2	20%	7/8	0.875	87.5%
2/5	0.4	40%	1/3	0.333...	33 1/3 %
3/5	0.6	60%	2/3	0.666...	66 2/3 %
4/5	0.8	80%	1/10	0.1	10%
1/20	0.05	5%	1/100	0.01	1%

The six conversions

Fraction -> decimal

divide the top by the bottom: $3/8 = 3 \div 8 = 0.375$

Decimal -> percentage

multiply by 100 (digits move two places left): $0.375 \rightarrow 37.5\%$

Fraction -> percentage

make the bottom 100 if you can ($3/4 = 75/100 = 75\%$), else go via the decimal

Percentage -> decimal

divide by 100 (digits move two places right): $45\% \rightarrow 0.45$; $5\% \rightarrow 0.05$

Percentage -> fraction

write over 100 and simplify: $45\% = 45/100 = 9/20$; $12.5\% = 125/1000 = 1/8$

Decimal -> fraction

read the place value, then simplify: $0.375 = 375/1000 = 3/8$

Six mistakes to watch for

1) 5% is 0.05, not 0.5. 2) Line decimals up (0.50, 0.05, 0.55) before comparing. 3) $1/3$ is 0.333... recurring, not 0.3. 4) Convert both to the same form before comparing $3/5$ with 55%. 5) Bigger number: digits move left; smaller: right. 6) Always simplify ($45/100 = 9/20$).

Worksheet: 30 questions (25 minutes, no calculator)

A. Convert (write the missing forms)

1. $\frac{3}{5}$ as a decimal and a percentage
2. 0.35 as a fraction (simplest) and a percentage
3. 62.5% as a decimal and a fraction
4. $\frac{7}{20}$ as a decimal and a percentage
5. 0.06 as a fraction and a percentage
6. $\frac{1}{8}$ as a decimal and a percentage
7. 120% as a decimal and a fraction
8. 0.875 as a fraction
9. $\frac{2}{3}$ as a decimal (3 dp) and a percentage
10. $\frac{9}{25}$ as a percentage

B. Compare and order

11. Which is larger: $\frac{3}{5}$ or 55%?
12. Which is larger: 0.4 or $\frac{3}{8}$?
13. Order smallest to largest: 0.7, $\frac{2}{3}$, 65%
14. Order: $\frac{1}{4}$, 0.3, 27%, $\frac{2}{9}$
15. True or false: $0.05 = \frac{1}{20}$
16. True or false: $\frac{1}{3} = 33\%$
17. Which is closest to $\frac{1}{2}$: 0.45, 56%, $\frac{4}{9}$?
18. Write a fraction between 0.3 and 40%
19. Which is smaller: 0.125 or $\frac{1}{9}$?
20. Order: $\frac{5}{8}$, 0.6, 62%, $\frac{3}{5}$

C. Percentage of an amount

- | | |
|---|-----------------------------|
| 21. 10% of 240 | 22. 25% of 88 |
| 23. 30% of 240 | 24. 5% of 60 |
| 25. 75% of 320 | 26. 12.5% of 400 |
| 27. 15% of 80 | 28. $33\frac{1}{3}\%$ of 90 |
| 29. $\frac{2}{5}$ of 150 as a percentage of 150 | 30. 0.3 of 90 |

Answers

- A. 1) 0.6, 60% 2) $\frac{7}{20}$, 35% 3) 0.625, $\frac{5}{8}$ 4) 0.35, 35% 5) $\frac{3}{50}$, 6% 6) 0.125, 12.5% 7) 1.2, $\frac{6}{5}$ (or $1\frac{1}{5}$)
8) $\frac{7}{8}$ 9) 0.667, $66\frac{2}{3}\%$ 10) 36%
- B. 11) $\frac{3}{5}$ (60%) 12) 0.4 ($\frac{3}{8} = 0.375$) 13) 65%, $\frac{2}{3}$, 0.7 14) $\frac{2}{9}$, $\frac{1}{4}$, 27%, 0.3 15) true 16) false ($33\frac{1}{3}\%$)
17) 0.45 (0.05 away; 56% is 0.06 away, $\frac{4}{9} = 0.444\dots$ is 0.056 away) 18) any fraction between 0.3 and 0.4,
e.g. $\frac{1}{3}$ or $\frac{7}{20}$ 19) $\frac{1}{9}$ (0.111...) 20) $\frac{3}{5}$ and 0.6 (equal), 62%, $\frac{5}{8}$
- C. 21) 24 22) 22 23) 72 24) 3 25) 240 26) 50 27) 12 28) 30 29) 40% 30) 27

Reading the score

Block A wrong: reteach that conversion with the chart. Block A right but B wrong: the child can convert but does not compare; always convert both to the same form first. Block C wrong: teach 10% first, then build ($30\% = 3 \times 10\%$; $5\% = \text{half of } 10\%$; $15\% = 10\% + 5\%$). 1-on-1 online maths, Year 4 to 8 and Grade 4 to 7: sciencewithshobha.com/subjects/ks2-sats/