

Fractions to Decimals • Answer Key

100 Answers + Quick Diagnostic Notes

Part 1A — Tenths (1-10)

1. $3/10 = 0.3$	2. $7/10 = 0.7$
3. $9/10 = 0.9$	4. $1/10 = 0.1$
5. $5/10 = 0.5 (= \frac{1}{2})$	6. $12/10 = 1.2$
7. $20/10 = 2.0 (= 2)$	8. $25/10 = 2.5$
9. $38/10 = 3.8$	10. $100/10 = 10$

Part 1B — Hundredths (11-20)

11. $47/100 = 0.47$	12. $9/100 = 0.09$
13. $50/100 = 0.50 (= 0.5)$	14. $99/100 = 0.99$
15. $3/100 = 0.03$	16. $60/100 = 0.60 (= 0.6)$
17. $25/100 = 0.25$	18. $175/100 = 1.75$
19. $200/100 = 2.00 (= 2)$	20. $7/100 = 0.07$

Part 1C — Thousandths (21-30)

21. $5/1000 = 0.005$	22. $17/1000 = 0.017$
23. $125/1000 = 0.125 (= \frac{1}{8})$	24. $500/1000 = 0.500 (= 0.5)$
25. $999/1000 = 0.999$	26. $50/1000 = 0.050 (= 0.05)$
27. $8/1000 = 0.008$	28. $1234/1000 = 1.234$
29. $2500/1000 = 2.500 (= 2.5)$	30. $30/1000 = 0.030 (= 0.03)$

Part 2A — Halves & Fourths (31-38)

31. $1/2 = 0.5 (1/2 = 5/10)$	32. $3/4 = 0.75 (3/4 = 75/100)$
33. $1/4 = 0.25$	34. $2/2 = 1$
35. $5/4 = 1.25$	36. $9/4 = 2.25$
37. $11/2 = 5.5$	38. $7/4 = 1.75$

Part 2B — Fifths & Twentieths (39-46)

39. $1/5 = 0.2 (1/5 = 2/10)$	40. $2/5 = 0.4$
41. $3/5 = 0.6$	42. $4/5 = 0.8$
43. $1/20 = 0.05 (1/20 = 5/100)$	44. $3/20 = 0.15$
45. $7/20 = 0.35$	46. $17/20 = 0.85$

Part 2C — 25ths & 50ths (47–55)

47. $1/25 = 0.04$ ($1/25 = 4/100$)	48. $7/25 = 0.28$
49. $13/25 = 0.52$	50. $11/50 = 0.22$ ($11/50 = 22/100$)
51. $27/50 = 0.54$	52. $49/50 = 0.98$
53. $1/50 = 0.02$	54. $3/25 = 0.12$
55. $19/25 = 0.76$	

Part 3A — Eighths (56–63)

56. $1/8 = 0.125$	57. $3/8 = 0.375$
58. $5/8 = 0.625$	59. $7/8 = 0.875$
60. $9/8 = 1.125$	61. $11/8 = 1.375$
62. $13/8 = 1.625$	63. $15/8 = 1.875$

Part 3B — Sixteenths & 32nds (64–71)

64. $1/16 = 0.0625$	65. $3/16 = 0.1875$
66. $5/16 = 0.3125$	67. $7/16 = 0.4375$
68. $9/16 = 0.5625$	69. $1/32 = 0.03125$
70. $5/32 = 0.15625$	71. $17/32 = 0.53125$

Part 3C — Tricky Denominators (72–80)

72. $1/40 = 0.025$ (multiply by $25/25 = 25/1000$)	73. $7/40 = 0.175$
74. $3/80 = 0.0375$	75. $1/125 = 0.008$ (multiply by $8/8 = 8/1000$)
76. $3/200 = 0.015$	77. $7/250 = 0.028$ (multiply by $4/4 = 28/1000$)
78. $9/500 = 0.018$	79. $11/40 = 0.275$
80. $21/40 = 0.525$	

Part 4 — Mixed & Improper (81–90)

81. $1\frac{1}{2} = 1.5$	82. $2\frac{3}{4} = 2.75$
83. $3\frac{1}{5} = 3.2$	84. $4\frac{7}{10} = 4.7$
85. $5\frac{3}{8} = 5.375$	86. $2\frac{1}{4} = 2.25$
87. $7/2 = 3.5$	88. $11/4 = 2.75$
89. $13/5 = 2.6$	90. $23/8 = 2.875$

Part 5 — Repeating Decimals (91–100)

91. $1/3 = 0.333... = 0.3$ (repeating)	92. $2/3 = 0.666... = 0.6$ (repeating)
93. $1/6 = 0.1666... = 0.16$ (the 6 repeats)	94. $5/6 = 0.8333... = 0.83$ (the 3 repeats)
95. $1/9 = 0.111... = 0.1$ (repeating)	96. $2/9 = 0.222... = 0.2$ (repeating)

97. $4/9 = 0.444... = 0.4$ (repeating)	98. $1/11 = 0.0909... = 0.09$ (the block 09 repeats)
99. $1/7 = 0.142857142857... (the\ block\ 142857\ repeats!)$	100. $4/7 = 0.571428571428... (same\ 6-digit\ block,\ different\ start)$

What to look for

Part 1 (Place Value, 1–30)

- Most common error: forgetting the LEADING ZERO. $3/100 = 0.03$, NOT 0.3. If you see this error repeated, the student doesn't yet understand that the hundredths position needs both digits filled.
- Watch problems 12, 15, 20 ($3/100$, $9/100$, $7/100$) and 21, 22, 27 ($5/1000$, $17/1000$, $8/1000$) specifically — these are the leading-zero tests.
- Problems 7, 19, 24 ($20/10$, $200/100$, $500/1000$) test whether the student recognizes when a decimal answer is actually a whole number or has trailing zeros that can be dropped.

Part 2 (Equivalent Fractions, 31–55)

- Strong students immediately see the multiplier (e.g., for $3/4$, multiply by 25 to get $75/100$). Weak students try long division for everything.
- Watch problem 31 ($1/2 = 0.5$) — anyone who gets this wrong has a major foundation gap.
- Problems 47–55 (25ths and 50ths) are the most diagnostic. A student who handles $13/25 = 52/100 = 0.52$ cleanly understands equivalent fractions deeply.

Part 3 (Long Division, 56–80)

- ★ The eighths (56–63) are worth memorizing: $1/8 = 0.125$, $2/8 = 0.25$, $3/8 = 0.375$, ..., $7/8 = 0.875$. Each is 0.125 more than the previous.
- Sixteenths (64–68) extend the pattern: each is 0.0625 (half of 0.125) more than the previous.
- Watch problems 64 ($1/16 = 0.0625$) and 69 ($1/32 = 0.03125$) — these have many decimal places, and students often stop dividing too early.
- Problems 72–80 (tricky denominators): the HINT says you can convert to /100 or /1000 instead of long-dividing. A student who notices the multiplier ($40 \times 25 = 1000$, $125 \times 8 = 1000$, $250 \times 4 = 1000$) is using equivalent-fraction thinking — much faster.

Part 4 (Mixed/Improper, 81–90)

- Common error: treating the whole-number part wrong. $2\ 3/4 = 2.75$, not 2.34 (concatenation error) or 0.275 (lost the 2).
- Improper fractions (87–90): student must do the division. $7/2 = 3.5$ — if they get 0.35 (wrong direction) they're confused about numerator vs denominator.

Part 5 (Repeating Decimals, 91–100)

- ★ The deepest test. Strong students recognize WHEN repeating happens — when the remainder repeats during long division, the digits will too.
- $1/3 = 0.333...$ is the most common. Accept any notation: $0.\bar{3}$, 0.3 (bar), or 0.333...
- Problem 93 ($1/6 = 0.1666...$) is tricky because the FIRST digit doesn't repeat — only the 6 does. Many students will write 0.16666... or 0.166...
- Problem 99 ($1/7 = 0.142857...$) — the 6-digit repeating block is the most beautiful pattern in elementary fractions. If the student does long division far enough to see it, that's strong execution.

Overall patterns to watch for

- Strategy choice: does the student use equivalent fractions when possible (Parts 1, 2) and only fall back to long division when needed (Part 3)? Or do they grind through every problem the same way?

- Trailing zeros: $0.50 = 0.5$ is fine, but a student who never drops trailing zeros may not see why they're optional.
- Negative-space awareness: do they leave room in the answer for a leading 0 when needed? (e.g., writing 0.07, not 0.7, for $7/100$)