Year 8 Fractions and Recurring Decimals – Mixed Practice

ANSWER KEY HappyKids.fit

Answers and worked solutions · 30 questions

A. Mixed practice (mixed order)

1. 2 17/20

Estimate: about 5 – 2 = 3
As improper fractions: 23/5 – 7/4
= 57/20 = 2 17/20

2. 0.4666... (the 6 recurs)

Divide: 7 ÷ 15
The remainders repeat, so the digits 6 recur
0.4666...

3. 12 4/5

Dividing by 5/8 is the same as multiplying by 8/5
8 × 8/5 = 12 4/5

4. 27 1/5

8 × 3 = 24 and 8 × 2/5 = 3 1/5
Total: 27 1/5

5. 3 1/2

Estimate: about 6 – 3 = 3
As improper fractions: 37/6 – 8/3
= 7/2 = 3 1/2

6. 50

Dividing by 3/10 is the same as multiplying by 10/3
15 × 10/3 = 50

7. 32 cups

6 × 5 1/3
= 32 cups

8. 11

3 × 3 = 9 and 3 × 2/3 = 2
Total: 11

9. 0.41666... (the 6 recurs)

Divide: 5 ÷ 12
The remainders repeat, so the digits 6 recur
0.41666...

10. 3 7/12

Estimate: about 6 – 2 = 4
As improper fractions: 73/12 – 5/2
= 43/12 = 3 7/12

11. Kofi took 1/5 from 3/5 the wrong way round. 3 1/5 – 2 3/5 = 16/5 – 13/5 = 3/5.

Error: the smaller fraction was subtracted from the larger one
Use improper fractions: 16/5 – 13/5
= 3/5

12. 7/30, 3/7, 2/9

In its simplest form, a fraction is a terminating decimal only if its denominator has no prime factors except 2 and 5
7/30: $2 \times 3 \times 5$; 7/20: $2^2 \times 5$; 3/7: 7; 2/9: 3^2

13. 18

$0.6 \times (45 - 15) = 0.6 \times 30$
= 18

14. 32 1/2

$5 \times 6 = 30$ and $5 \times 1/2 = 2\ 1/2$
Total: 32 1/2

15. 13

$0.25 \times 4 \times 13 = 1 \times 13$
= 13

16. 72

Dividing by 1/8 is the same as multiplying by 8
$9 \times 8 = 72$

17. 2/9, 2/15

In its simplest form, a fraction is a terminating decimal only if its denominator has no prime factors except 2 and 5
2/9: 3^2; 2/15: 3×5; 11/16: 2^4; 3/8: 2^3

18. 15 bottles

$6 \div 2/5 = 6 \times 5/2$
= 15

19. Farah took 1/5 from 4/5 the wrong way round. 4 1/5 – 1 4/5 = 21/5 – 9/5 = 2 2/5.

Error: the smaller fraction was subtracted from the larger one
Use improper fractions: 21/5 – 9/5
= 2 2/5

20. 0.666... (the 6 recurs)

Divide: 2 ÷ 3
The remainders repeat, so the digits 6 recur
0.666...

21. 3 29/40

Estimate: about 6 – 2 = 4
As improper fractions: 49/8 – 12/5
= 149/40 = 3 29/40

22. No. 1/3 = 0.333..., so 3 × 1/3 = 0.999... = 1. They are equal.

Test an example
1/3 = 0.333..., so 3 × 1/3 = 0.999... = 1. They are equal.
Decide

23. Lina took 1/8 from 4/8 the wrong way round. 7 1/8 – 1 1/2 = 57/8 – 3/2 = 5 5/8.

Error: the smaller fraction was subtracted from the larger one
Use improper fractions: 57/8 – 3/2
= 5 5/8

24. 5/6, 1/12

In its simplest form, a fraction is a terminating decimal only if its denominator has no prime factors except 2 and 5
5/6: 2 × 3; 11/16: 2^4; 3/8: 2^3; 1/12: $2^2 \times 3$

25. 3

3/4 × (9 – 5) = 3/4 × 4
= 3

26. 0.8333... (the 3 recurs)

Divide: 5 ÷ 6
The remainders repeat, so the digits 3 recur
0.8333...

27. 1 9/10

Estimate: about 4 – 2 = 2
As improper fractions: 43/10 – 12/5
= 19/10 = 1 9/10

28. 3 7/8 m

6 – 2 1/8 = 6 – 17/8
= 3 7/8 m

29. 46 1/5

7 × 6 = 42 and 7 × 3/5 = 4 1/5
Total: 46 1/5

30. 44

Dividing by 1/4 is the same as multiplying by 4
11 × 4 = 44