Year 9 Fractions and Decimals – Mixed Practice

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Answers and worked solutions · 30 questions

A. Mixed practice (mixed order)

1. **3/20**

Order of operations, brackets first: 1/4 – 1/5 = 1/20

= 3/20

2. **2**

Improper fractions: 7/4 × 8/7

Cancel common factors, then multiply: = 2

= 2

3. **3**

Improper fractions: 7/2 ÷ 7/6

Multiply by the reciprocal: 7/2 × 6/7

= 3

4. **recurring: $28 = 2^2 \times 7$, which has a prime factor other than 2 and 5**

9/28 is in its simplest form

$28 = 2^2 \times 7$

Another prime factor: recurring

5. **14**

Multiply both numbers by 100: 168 ÷ 12

= 14

6. **1/18**

Improper fractions with denominator 18: 81/18 – 80/18

= 1/18

7. **estimate 8; exact 9 4/5**

4 1/5 ≈ 4 and 2 1/3 ≈ 2

Estimate: 4 × 2 = 8

Exact: 21/5 × 7/3 = 9 4/5

8. **terminating: 3/12 = 1/4 in its simplest form. $4 = 2^2$, which has no prime factors other than 2 and 5**

Simplify first: 3/12 = 1/4

$4 = 2^2$

Only 2s and 5s: terminating

9. **1 7/8**

Order of operations, brackets first: 1/4 + 2 = 9/4

= 1 7/8

10. **1 7/9 cups**

1 1/3 × 1 1/3 = 4/3 × 4/3

= 1 7/9 cups

11. 5/12

Improper fractions with denominator 12: 21/12 − 16/12
= 5/12

12. 4; 8

0.25 = 1/4, and dividing by 1/4 is the same as multiplying by 4
2 × 4 = 8

13. 56

Multiply both numbers by 10: 168 ÷ 3
= 56

14. 22 13/28

Improper fractions: 37/8 × 34/7
Cancel common factors, then multiply: = 629/28
= 22 13/28

15. 125

0.008 = 1/125; the reciprocal is 1 ÷ 1/125 = 125

16. No. Counter-example: 3/30 = 1/10 = 0.1, which terminates. Simplify before deciding.

Test some examples
Counter-example: 3/30 = 1/10 = 0.1, which terminates. Simplify before deciding.
Decide whether it is always true

17. 17/22

Improper fractions: 17/6 ÷ 11/3
Multiply by the reciprocal: 17/6 × 3/11
= 17/22

18. terminating: 125 = 5^3, which has no prime factors other than 2 and 5

48/125 is in its simplest form
125 = 5^3
Only 2s and 5s: terminating

19. 2; 2

0.5 = 1/2, and dividing by 1/2 is the same as multiplying by 2
1 × 2 = 2

20. estimate 1.8; exact 1.932

9.2 ≈ 9 and 0.21 ≈ 0.2
Estimate: 9 × 0.2 = 1.8
Exact: 1.932, close to the estimate

21. 1 8/29

Improper fractions: 37/9 ÷ 29/9
Multiply by the reciprocal: 37/9 × 9/29
= 1 8/29

22. Multiply before adding: 3/4 + 1/2 = 1 1/4.

Error: the addition was done first
1/8 × 4 = 1/2
3/4 + 1/2 = 1 1/4

23. –15/16

Order of operations, brackets first: 1/2 – 7/8 = –3/8
= –15/16

24. Both are 5 1/3: dividing by 3/4 is multiplying by its reciprocal, 4/3.

There are 4/3 lots of 3/4 in 1
So 4 ÷ 3/4 = 4 × 4/3
= 16/3 = 5 1/3

25. 2.66

Ignore the decimal points: 14 × 19 = 266
2 decimal places: 2.66

26. 1/18

Improper fractions with denominator 18: 45/18 – 44/18
= 1/18

27. 4 5/6

Improper fractions: 29/9 × 3/2
Cancel common factors, then multiply: = 29/6
= 4 5/6

28. 168 litres

The fraction used is 2/3 – 1/4 = 5/12
5/12 of the butt is 70 litres
Full: 70 ÷ 5/12 = 168 litres

29. 9/38

4 2/9 = 38/9; the reciprocal is 1 ÷ 38/9 = 9/38

30. Yes. Addition is commutative: the order does not change the sum (both are 5/6).

Test some examples
Addition is commutative: the order does not change the sum (both are 5/6).
Decide whether it is always true