Class 7 Fractions and Decimals Worksheet

Thinking Juggernaut

Name: _____   **Date:** _____   **Total Marks:** 24

📐 Key Concepts: Fractions and Decimals

Operations with Fractions:

- **Addition/Subtraction:** Find LCD (Lowest Common Denominator), convert, then add/subtract numerators
- **Multiplication:** Multiply numerators together, multiply denominators together, then simplify
- **Division:** Multiply by the reciprocal (flip the second fraction)

Decimal Operations:

- **Addition/Subtraction:** Align decimal points, then calculate
- **Multiplication:** Multiply normally, count total decimal places in both numbers
- **Division:** Move decimal point in divisor to make it whole, move same places in dividend

Conversions:

- **Fraction → Decimal:** Divide numerator by denominator
- **Decimal → Fraction:** Write as fraction with denominator based on decimal places (0.5 = 5/10 = 1/2)

📝 Sample Problem

Problem: A recipe requires 2¾ cups of flour. If you want to make 1½ times the recipe, how much flour do you need? Express your answer as a mixed number and as a decimal.

Original Recipe × 1½ = New Amount

| 2¾ cups | × | 1½ times | = | ? cups |

Multiply mixed numbers to find total flour needed

Solution:

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Step 1: Convert mixed numbers to improper fractions

2¾ = 11/4 and 1½ = 3/2
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Step 2: Multiply the fractions

11/4 × 3/2 = (11×3)/(4×2) = 33/8
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Step 3: Convert to mixed number

33 ÷ 8 = 4 remainder 1, so 33/8 = 4⅛ cups
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Step 4: Convert to decimal

33 ÷ 8 = 4.125 cups
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Answer: 4⅛ cups or 4.125 cups of flour needed

Part A: Fundamental Operations

⭐ **Foundation Level**

1. Simplify: $\dfrac{5}{8} + \dfrac{3}{8}$
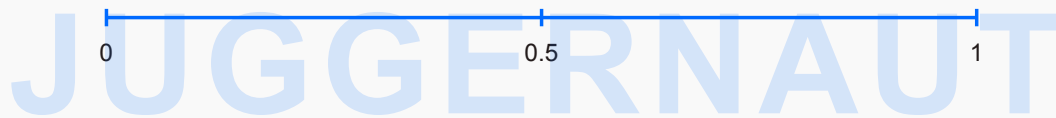
2. Convert 0.375 to a fraction in its simplest form.

Show your work:

3. Calculate: 4.56 + 2.84

4. Multiply: $\dfrac{2}{3} \times \dfrac{4}{5}$

5. Arrange in ascending order: $0.7, \dfrac{2}{3}, 0.65, \dfrac{3}{4}$

Order: _____ < _____ < _____ < _____

6. Subtract: 5.2 - 3.47

7. Divide: $\dfrac{3}{4} \div \dfrac{2}{5}$

Remember: Multiply by the reciprocal

8. Convert $\dfrac{7}{8}$ to a decimal.

Part B: Application Problems

⭐⭐ **Intermediate Level**

9. Priya bought 3.5 kg of apples at ₹80 per kg and 2.25 kg of oranges at ₹60 per kg. What is the total cost?

Apples
3.5 kg @ ₹80/kg

Oranges
2.25 kg @ ₹60/kg

Cost of apples: ₹_____
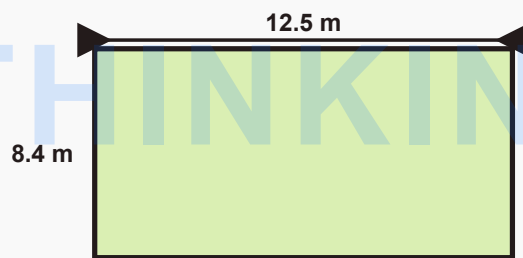Cost of oranges: ₹_____
Total cost: ₹_____

10. A water tank is $\dfrac{3}{5}$ full. If 120 litres more water is added, it becomes $\dfrac{4}{5}$ full. What is the total capacity of the tank?

Hint: Find what fraction 120 litres represents

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11. Calculate: 2⅗ + 1¾

Express as a mixed number and decimal

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12. A rectangular garden is 12.5 m long and 8.4 m wide. Find its perimeter.

Perimeter = _____ m

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13. Simplify: $\dfrac{7}{12} - \dfrac{5}{18}$

Find LCD first

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14. A student scores 37.5 marks out of 50 in Math and 42.8 marks out of 50 in Science. What is the total score and percentage?

Total marks: _____/100

Percentage: ____%

15. Multiply: 3.6 × 2.5

16. A rope 18.6 m long is cut into 3 equal pieces. What is the length of each piece?

17. Express $\dfrac{5}{6}$ as a decimal (round to 2 decimal places).

18. Calculate: 1⅓ × 2¼

Convert to improper fractions first

Part C: Advanced Problem Solving

⭐⭐⭐ Challenge Level

19. A car travels 156.8 km in 2.8 hours. What is its average speed in km/h? If it continues at the same speed, how far will it travel in 4.5 hours?

Average speed: ____ km/h

Distance in 4.5 hours: _____ km

20. Rajesh spent $\frac{2}{5}$ of his salary on rent, $\frac{1}{4}$ on food, and $\frac{1}{10}$ on transportation. What fraction of his salary is left? If his salary is ₹40,000, how much money does he have left?

| Rent (2/5) | Food (1/4) | Trans (1/10) | Savings (?) |

Fraction left: _____
Amount left: ₹_____

21. A recipe for 4 people requires 2.5 cups of flour, 1.75 cups of sugar, and 0.5 cups of butter. Adjust the quantities for 6 people.

Flour: _____ cups
Sugar: _____ cups
Butter: _____ cups

22. Simplify: $(3\frac{2}{3} + 2\frac{1}{4}) - 1\frac{5}{6}$
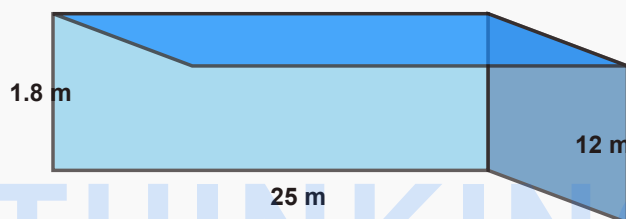
Show all steps clearly

23. A shopkeeper marks an item at ₹850. He offers a discount of 12.5%. What is the selling price? If he still makes a profit of ₹106.25, what was his cost price?

Discount amount: ₹_____
Selling price: ₹_____
Cost price: ₹_____

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24. A swimming pool has dimensions 25 m × 12 m × 1.8 m. How many litres of water can it hold? (1 cubic meter = 1000 litres)

1.8 m

12 m

25 m

Volume in cubic meters: _____ m³
Capacity in litres: _____ L

🔑 Answer Key

Part A: Fundamental Operations

1. 8/8 = 1 (same denominator, add numerators: 5+3=8)

2. 3/8 (0.375 = 375/1000 = 3/8 after simplification)

3. 7.40 or 7.4 (align decimals: 4.56 + 2.84)

4. 8/15 (multiply: 2×4=8, 3×5=15)

5. 0.65 < 2/3 (≈0.667) < 0.7 < 3/4 (0.75)

6. 1.73 (align decimals: 5.20 - 3.47)

7. 15/8 or 1⅞ (3/4 × 5/2 = 15/8)

8. 0.875 (7÷8 = 0.875)

Part B: Application Problems

9. Apples: ₹280, Oranges: ₹135, Total: ₹415

10. 600 litres (4/5 - 3/5 = 1/5 = 120L, so full capacity = 120×5 = 600L)

11. 4 7/20 or 4.35 (convert to 13/5 + 7/4 = 52/20 + 35/20 = 87/20)

12. 41.8 m (perimeter = 2(12.5+8.4) = 2×20.9 = 41.8m)

13. 11/36 (LCD=36: 21/36 - 10/36 = 11/36)

14. Total: 80.3/100, Percentage: 80.3%

15. 9.0 or 9 (3.6 × 2.5 = 9.00)

16. 6.2 m (18.6 ÷ 3 = 6.2m)

17. 0.83 (5÷6 = 0.833... ≈ 0.83)

18. 3 or 3/1 (4/3 × 9/4 = 36/12 = 3)

Part C: Advanced Problem Solving

19. Speed: 56 km/h (156.8÷2.8), Distance: 252 km (56×4.5)

20. Fraction left: 1/4, Amount: ₹10,000 (Spent: 2/5+1/4+1/10 = 8/20+5/20+2/20 = 15/20 = 3/4, Left: 1/4 = ₹10,000)

21. Flour: 3.75 cups (2.5×1.5), Sugar: 2.625 cups (1.75×1.5), Butter: 0.75 cups (0.5×1.5)

22. 4 1/12 (3⅔ + 2¼ = 5 11/12, then 5 11/12 - 1⅚ = 5 11/12 - 1 10/12 = 4 1/12)

23. Discount: ₹106.25, Selling Price: ₹743.75, Cost Price: ₹637.50 (SP = 850-106.25, CP = SP-profit)

24. Volume: 540 m³, Capacity: 540,000 L (25×12×1.8 = 540 m³ × 1000)

📊 Performance Analysis & Learning Path

Total Questions: 24 | Total Marks: 24

Score Range	Performance Level	Recommended Action Plan
20-24	⭐⭐⭐ Excellent	**Advanced Topics Ready:** • Rational numbers and their properties • Algebraic expressions with fractions • Percentage, profit & loss applications • Complex word problems involving multiple operations • Prepare for Class 8 advanced concepts
15-19	⭐⭐ Very Good	**Strengthen Core Skills:** • Practice fraction division (multiply by reciprocal) • Master finding LCD for unlike fractions • Work on decimal multiplication & division • Solve 10 mixed word problems daily • Focus on conversion between fractions and decimals
10-14	⭐ Good Effort	**Build Foundation:** • Review basic operations: addition, subtraction with common denominators • Practice multiplication tables (essential for fraction operations) • Master decimal place value and alignment • Do 15 basic problems daily (5 fractions + 5 decimals + 5 conversions) • Use visual aids: bar models, number lines • Revise Class 6 concepts if needed

0-9	Needs Improvement	**Fundamentals Review Required:** • Start with Class 6 fraction basics • Learn fraction simplification thoroughly • Practice decimal operations with step-by-step methods • Work with tutor or teacher for one-on-one help • Complete 20 basic problems daily with checking • Watch educational videos on Khan Academy/YouTube • Use manipulatives (fraction strips, decimal grids)

🎯 Essential Formulas & Tips

Fraction Operations:

- a/b + c/d = (ad + bc)/bd [or find LCD]
- a/b × c/d = (a×c)/(b×d)
- a/b ÷ c/d = a/b × d/c

Common Conversions:

- 1/2 = 0.5 | 1/4 = 0.25 | 3/4 = 0.75
- 1/5 = 0.2 | 1/8 = 0.125 | 1/10 = 0.1

Problem-Solving Tips:

- Always simplify fractions to lowest terms
- Check if your answer is reasonable using estimation
- For mixed numbers in operations: convert to improper fractions first
- In word problems: identify keywords (total=add, difference=subtract, etc.)

✨ Excellent Work Completing This Worksheet! ✨

Keep practicing and challenging yourself with increasingly complex problems!

🔥 Download more Class 7 worksheets at thinkingjuggernaut.in
📘 Discuss difficult problems with your teacher or study group
📚 Review concepts regularly - consistency is key to mastery!

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