Merit Tutoring

WORKSHEET 23

Year 6 Mathematics: Fractions, Decimals & Percentages

Decimals (All Operations)

Focus: Adding & Subtracting Decimals

Name: _____ **Date:** _____

The Golden Rule: Line Up the Dots!

Understanding Decimal Place Value:

$$45.67 = 40 + 5 + 0.6 + 0.07$$

The Golden Rule for Adding and Subtracting:
ALWAYS line up the decimal points vertically!
Example 1: Addition

$$\begin{array}{r} 4.5 \\ +\ 2.3 \\ \hline 6.8 \end{array}$$

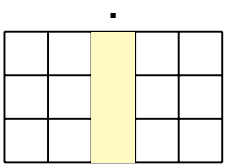
Example 2: Subtraction

$$\begin{array}{r} 12.75 \\ -\ \ 4.20 \\ \hline 8.55 \end{array}$$

Using Placeholders:
If one number has fewer decimal places, add zeros:
$15 + 2.5$ becomes $15.0 + 2.5 = 17.5$
Tip: Think of decimals like money - you're adding dollars and cents!

Section 1: Vertical Alignment (Fluency)

1. Calculate: $4.5 + 2.3$
Use the grid below to help line up the decimal points:

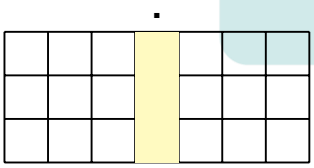


Answer: _____

2. Calculate: $7.8 + 1.6$

Answer: _____

3. Calculate: $12.75 - 4.20$
Use the grid below:



Answer: _____

4. Calculate: $9.4 - 3.7$

Answer: _____

5. Calculate: $6.25 + 3.48$

Answer: _____

6. Calculate: $15.90 - 7.65$

Answer: _____

DECIMAL DYNAMO!

Decimal Dog

What did the decimal say to the dollar?
"I'm just a fraction of what you are!"

Section 2: Using Placeholders (Reasoning)

7. Calculate: $15 + 2.5$
(Hint: Write 15 as 15.0 to line up the decimal points)

$15 \rightarrow 15.0$

Answer: _____

8. Calculate: $20 + 4.75$

Answer: _____

9. Calculate: $10 - 3.4$
(Remember: $10 = 10.0$, and you may need to borrow!)

Answer: _____

10. Calculate: $8 - 2.65$

Answer: _____

11. Calculate: $5.6 + 7 + 3.25$
(Hint: Write 7 as 7.0, then add all three numbers)

Answer: _____

12. True or False: When adding decimals, you can ignore the decimal point and add it back at the end.
Explain your answer.

Answer: _____

POINT PERFECT!

Point Panda

Why did the student eat their homework?
Because the teacher said it was a piece of cake!

Section 3: Word Problems (Challenge)

13. A piece of wood is 2.4m long. I cut off 0.8m. How much is left?

Answer: _____

14. I buy chips for $3.50 and a drink for $2.80. How much change do I get from $10?

Answer: _____

15. Tom ran 3.75km on Monday and 2.5km on Tuesday. How far did he run in total?

Answer: _____

16. A container holds 5 litres. If 1.8 litres are poured out, how much remains?

Answer: _____

17. Sarah has $25. She buys a book for $12.75 and a pen for $3.50. How much money does she have left?

Answer: _____

18. A recipe needs 2.5 cups of flour and 1.25 cups of sugar. How much dry ingredients in total?

Answer: _____

CALCULATION CHAMPION!

Dot Doctor

What do you call a decimal that's always moving?

A roaming point!

Fantastic Work! Check your answers on the next page.

ANSWER KEY

Worksheet 23: Adding & Subtracting Decimals

Section 1: Vertical Alignment

1. 6.8 (4.5 + 2.3 = 6.8)
2. 9.4 (7.8 + 1.6 = 9.4)
3. 8.55 (12.75 - 4.20 = 8.55)
4. 5.7 (9.4 - 3.7 = 5.7)
5. 9.73 (6.25 + 3.48 = 9.73)
6. 8.25 (15.90 - 7.65 = 8.25)

Section 2: Using Placeholders

7. 17.5 (15.0 + 2.5 = 17.5)
8. 24.75 (20.00 + 4.75 = 24.75)
9. 6.6 (10.0 - 3.4 = 6.6)
10. 5.35 (8.00 - 2.65 = 5.35)
11. 15.85 (5.6 + 7.0 + 3.25 = 15.85)
12. False. You must line up the decimal points to keep track of place value (ones, tenths, hundredths).

Section 3: Word Problems

13. 1.6m (2.4 - 0.8 = 1.6)
14. $3.70 (Total spent: $3.50 + $2.80 = $6.30; Change: $10.00 - $6.30 = $3.70)
15. 6.25km (3.75 + 2.5 = 6.25)
16. 3.2 litres (5.0 - 1.8 = 3.2)
17. $8.75 (Total spent: $12.75 + $3.50 = $16.25; Remaining: $25.00 - $16.25 = $8.75)
18. 3.75 cups (2.5 + 1.25 = 3.75)

Merit Tutoring

WORKSHEET 24

Year 6 Mathematics: Fractions, Decimals & Percentages

Decimals (All Operations)

Focus: Multiplying & Dividing Decimals

Name: _____ **Date:** _____

The Magic of Powers of 10

Multiplying by Powers of 10:
When you multiply by 10, 100, or 1000, the decimal point **jumps to the RIGHT**:

$$3.5 \times 10 = 35 \text{ (move point 1 place right)}$$

$$3.5 \times 100 = 350 \text{ (move point 2 places right)}$$

Dividing by Powers of 10:
When you divide by 10, 100, or 1000, the decimal point **jumps to the LEFT**:

$$42.6 \div 10 = 4.26 \text{ (move point 1 place left)}$$

$$42.6 \div 100 = 0.426 \text{ (move point 2 places left)}$$

Visual Helper:

$$3.5 \xrightarrow{\times 10} 35$$

Multiplying by Whole Numbers:

$$1.2 \times 3 = 3.6 \text{ (think: 12 tenths } \times 3 = 36 \text{ tenths)}$$

Dividing by Whole Numbers:

$$4.8 \div 2 = 2.4 \text{ (think: 48 tenths } \div 2 = 24 \text{ tenths)}$$

Section 1: Powers of 10 (Fluency)

1. Calculate: 3.5×10
Use the jump arrow to visualize:

$$3.5 \xrightarrow{\text{jump right}} ?$$

Answer: _____

2. Calculate: $42.6 \div 10$

jump left

42.6 ⟶ ?

Answer: _____

3. Calculate: 0.7×100

Answer: _____

4. Calculate: $85 \div 10$

Answer: _____

5. Calculate: 6.4×10

Answer: _____

6. Calculate: $125.3 \div 100$

Answer: _____

POWER OF 10 PRO!

Jumping Joey

Why was 10 afraid of 7?

Because 7 8 (ate) 9, and 10 was next!

Section 2: Multiplying & Dividing by Whole Numbers (Reasoning)

7. Calculate: 1.2×3

(Hint: Think of it as $12 \times 3 = 36$, so $1.2 \times 3 = 3.6$)

Answer: _____

8. Calculate: $4.8 \div 2$

(Hint: $48 \div 2 = 24$, so $4.8 \div 2 = 2.4$)

Answer: _____

9. Calculate: 2.5×4

Answer: _____

10. Calculate: $9.6 \div 3$

Answer: _____

11. Calculate: 0.6×5

Answer: _____

12. Calculate: $7.2 \div 6$

Answer: _____

13. Which is larger: 3.5×2 or 6.5?
Show your working.

Answer: _____

MULTIPLICATION MASTER!

Calc-u-bot

What's a math teacher's favorite place to visit?
Times Square!

Section 3: Real World Application (Challenge)

14. If 1kg of apples costs $4.20, how much does 0.5kg (half) cost?

Answer: _____

15. A ribbon is 3.6m long. It is cut into 3 equal pieces. How long is each

piece?

Answer: _____

16. A bottle contains 1.5 litres of juice. If I pour 5 equal glasses, how much juice is in each glass?

Answer: _____

17. One pencil costs $0.85. How much do 4 pencils cost?

Answer: _____

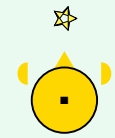
18. A car travels 12.5km on 1 litre of petrol. How far can it travel on 6 litres?

Answer: _____

19. Challenge: A rectangular garden is 4.5m long and 2.8m wide. If I want to make it 10 times bigger in both directions, what are the new dimensions?

Answer: _____

DECIMAL EXPERT!



Decimal Champion

Why did the decimal break up with the fraction?

Because it found someone more rational!

Outstanding Work! Check your answers on the next page.

ANSWER KEY

Worksheet 24: Multiplying & Dividing Decimals

Section 1: Powers of 10

1. 35 (move decimal point 1 place right: $3.5 \rightarrow 35$)
2. 4.26 (move decimal point 1 place left: $42.6 \rightarrow 4.26$)
3. 70 (move decimal point 2 places right: $0.7 \rightarrow 7.0 \rightarrow 70$)
4. 8.5 (move decimal point 1 place left: $85 \rightarrow 8.5$)
5. 64 (move decimal point 1 place right: $6.4 \rightarrow 64$)
6. 1.253 (move decimal point 2 places left: $125.3 \rightarrow 12.53 \rightarrow 1.253$)

Section 2: Multiplying & Dividing by Whole Numbers

7. 3.6 (think: $12 \times 3 = 36$, so $1.2 \times 3 = 3.6$)
8. 2.4 (think: $48 \div 2 = 24$, so $4.8 \div 2 = 2.4$)
9. 10 or 10.0 ($25 \times 4 = 100$, so $2.5 \times 4 = 10$)
10. 3.2 ($96 \div 3 = 32$, so $9.6 \div 3 = 3.2$)
11. 3 or 3.0 ($6 \times 5 = 30$, so $0.6 \times 5 = 3$)
12. 1.2 ($72 \div 6 = 12$, so $7.2 \div 6 = 1.2$)
13. $3.5 \times 2 = 7$, which is larger than 6.5

Section 3: Real World Application

14. $2.10 ($4.20 ÷ 2 = $2.10)
15. 1.2m (3.6 ÷ 3 = 1.2)
16. 0.3 litres (1.5 ÷ 5 = 0.3)
17. $3.40 ($0.85 × 4 = $3.40)
18. 75km (12.5 × 6 = 75)
19. Length: 45m (4.5 × 10 = 45); Width: 28m (2.8 × 10 = 28)

Exceptional Achievement!

You've mastered Decimals (All Operations)! From addition to multiplication - you're a decimal superstar!