

# GRADE 5 MATHEMATICS

## PERCENTAGES

### Complete Worksheet Pack

- Understanding percentages
  - Finding percentages of quantities
  - Fractions • Decimals • Percentages
  - Comparing, reasoning & real-life problems
  - Challenge questions
- 6 practice worksheets + separate answer keys

# Worksheet 1 • Understanding Percentages

Percent means “out of 100”.

## A. Write the percentage

1. 37 out of 100 students chose art. Write the percentage.

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2. 64 out of 100 stickers are blue. Write the percentage.

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3. 9 out of 100 seats are empty. Write the percentage.

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4. Write 25% as a fraction out of 100.

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5. Write 80% as a fraction out of 100.

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## B. Fractions and percentages

6. Complete:  $\frac{1}{2} = \underline{\hspace{1cm}}\%$ .

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7. Complete:  $\frac{1}{4} = \underline{\hspace{1cm}}\%$ .

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8. Complete:  $\frac{3}{4} = \underline{\hspace{1cm}}\%$ .

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9. Complete:  $\frac{1}{5} = \underline{\hspace{1cm}}\%$ .

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10. Complete:  $\frac{3}{5} = \underline{\hspace{1cm}}\%$ .

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## C. Think carefully

11. A class has 100 squares. 42 are shaded. What percentage is shaded?

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12. 18% of a chart is green. How many squares would be green in a 100-square grid?

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13. Explain in one sentence what 65% means.

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14. Which is greater: 45% or 54%? Explain how you know.

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# Worksheet 1 • Understanding Percentages

Answer Key

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## A

1. 37% 2. 64% 3. 9% 4. 25/100 5. 80/100

## B

6. 50% 7. 25% 8. 75% 9. 20% 10. 60%

## C

11. 42% 12. 18 squares 13. 65 out of 100. 14. 54%.

# Worksheet 2 • Finding Percentages of Quantities

Use mental strategies and benchmark percentages.

## A. Find common percentages

1. Find 10% of 70.

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2. Find 10% of 350.

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3. Find 50% of 84.

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4. Find 25% of 120.

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5. Find 75% of 200.

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6. Find 20% of 150.

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## B. Apply a strategy

7. Find 30% of 90.

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8. Find 40% of 250.

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9. Find 15% of 200.

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10. Find 35% of 400.

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11. Find 5% of 360.

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12. Find 60% of 450.

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## C. Reasoning

13. A student says 25% of 80 is 25. Is the student correct? Explain.

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14. Without a calculator, find 75% of 64. Show a smart strategy.

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15. Which is greater: 20% of 300 or 30% of 180? Show your working.

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## Worksheet 2 • Finding Percentages of Quantities

Answer Key

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**A**

1. 7 2. 35 3. 42 4. 30 5. 150 6. 30

**B**

7. 27 8. 100 9. 30 10. 140 11. 18 12. 270

**C**

13. No; it is 20. 14. 48. 15. 20% of 300 = 60; 30% of 180 = 54, so 60 is greater.

# Worksheet 3 • Fractions, Decimals & Percentages

Convert between the three forms.

## A. Complete the equivalences

1.  $\frac{1}{2} = 0.5 = \underline{\hspace{1cm}}\%$ .

2.  $\frac{1}{4} = 0.25 = \underline{\hspace{1cm}}\%$ .

3.  $\frac{3}{4} = 0.75 = \underline{\hspace{1cm}}\%$ .

4.  $\frac{1}{5} = 0.2 = \underline{\hspace{1cm}}\%$ .

5.  $\frac{2}{5} = 0.4 = \underline{\hspace{1cm}}\%$ .

6.  $\frac{3}{5} = 0.6 = \underline{\hspace{1cm}}\%$ .

## B. Convert

7. Write 0.35 as a percentage.

8. Write 0.82 as a percentage.

9. Write 45% as a decimal.

10. Write 72% as a decimal.

11. Write 30% as a fraction in simplest form.

12. Write 60% as a fraction in simplest form.

## C. Mixed challenge

13. Arrange from least to greatest: 0.6, 55%,  $\frac{3}{5}$ , 0.58.

14. Which is equal to 0.25: 20%,  $\frac{1}{4}$ , 0.2, or  $\frac{2}{5}$ ?

15. A quantity is 0.75 of the whole. Write it as a fraction and a percentage.

# Worksheet 3 • Fractions, Decimals & Percentages

Answer Key

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**A**

1. 50% 2. 25% 3. 75% 4. 20% 5. 40% 6. 60%

**B**

7. 35% 8. 82% 9. 0.45 10. 0.72 11.  $\frac{3}{10}$  12.  $\frac{3}{5}$

**C**

13. 55%, 0.58,  $0.6 = \frac{3}{5}$ . 14.  $\frac{1}{4}$ . 15.  $\frac{3}{4}$  and 75%.

# Worksheet 4 • Comparing & Reasoning with Percentages

Compare, find missing values and spot errors.

## A. Compare

1. Put  $>$ ,  $<$  or  $=$  :  $35\%$  \_\_\_\_  $53\%$ .

2. Put  $>$ ,  $<$  or  $=$  :  $0.7$  \_\_\_\_  $65\%$ .

3. Put  $>$ ,  $<$  or  $=$  :  $\frac{3}{4}$  \_\_\_\_  $75\%$ .

4. Put  $>$ ,  $<$  or  $=$  :  $40\%$  \_\_\_\_  $0.4$ .

## B. Find the missing number

5.  $20\%$  of \_\_\_\_ =  $30$ .

6.  $25\%$  of \_\_\_\_ =  $50$ .

7. \_\_\_\_% of  $200$  =  $80$ .

8. \_\_\_\_% of  $400$  =  $120$ .

9.  $50\%$  of \_\_\_\_ =  $75$ .

## C. Error analysis & reasoning

10. Sam says  $30\%$  of  $90 = 27$ . Is he correct? Explain.

11. Mia says  $15\%$  of  $200 = 15$ . Identify her mistake and give the correct answer.

12. A number is increased from  $80$  to  $100$ . What percentage of the original number is the increase?

13.  $40\%$  of a number is  $28$ . What is the number?

14. Can two different numbers have the same  $25\%$ ? Explain.

# Worksheet 4 • Comparing & Reasoning with Percentages

Answer Key

**A**

1. < 2. > 3. = 4. =

**B**

5. 150 6. 200 7. 40% 8. 30% 9. 150

**C**

10. Yes. 11. Correct answer is 30; 15% means 15/100 of 200. 12. 25%. 13. 70. 14. If the percentage amount must be identical, no: 25% is one quarter, so different positive numbers give different results.

# Worksheet 5 • Percentages in Real Life

Apply percentages to everyday situations.

## A. Everyday percentages

1. A school survey has 200 students. 60% chose football. How many students is that?  
\_\_\_\_\_
2. A library has 500 books. 20% are fiction. How many fiction books are there?  
\_\_\_\_\_
3. A test has 40 questions. Maya answers 90% correctly. How many did she answer correctly?  
\_\_\_\_\_
4. A water tank holds 600 L. It is 75% full. How many litres are in it?  
\_\_\_\_\_

## B. Discounts

5. A jacket costs \$80 and is reduced by 25%. How much is the discount?  
\_\_\_\_\_
6. A game costs \$60 and is reduced by 10%. What is the sale price?  
\_\_\_\_\_
7. A backpack costs \$120 and is reduced by 20%. What is the sale price?  
\_\_\_\_\_
8. A bicycle costs \$400 and is reduced by 15%. What is the discount?  
\_\_\_\_\_

## C. Multi-step problems

9. A school has 800 students. 35% take the bus. Of those students, 25% take Bus A. How many students take Bus A?  
\_\_\_\_\_
10. A shop has 240 notebooks. 40% are sold in the morning and 25% of the remaining notebooks are sold in the afternoon. How many notebooks remain?  
\_\_\_\_\_
11. A charity receives \$1,000. It spends 30% on food and 20% of the original amount on school supplies. How much remains?  
\_\_\_\_\_

# Worksheet 5 • Percentages in Real Life

Answer Key

**A**

1. 120 2. 100 3. 36 4. 450 L

**B**

5. \$20 6. \$54 7. \$96 8. \$60

**C**

9. 70 students 10. 108 notebooks remain 11. \$500 remains.

# Worksheet 6 • Percentage Reasoning Challenge

Use more than one step and explain your thinking.

## A. Challenge

1. 35% of a number is 42. Find the number.  
\_\_\_\_\_
2. A number is 25% greater than 80. What is the new number?  
\_\_\_\_\_
3. A number is 20% less than 150. What is the new number?  
\_\_\_\_\_
4. 60% of a class are girls. If there are 18 girls, how many students are in the class?  
\_\_\_\_\_
5. A price of \$200 is reduced by 15%, then the sale price is reduced by another 10%. What is the final price?  
\_\_\_\_\_

## B. Missing values & reasoning

6. 30% of a number is 24. What is 50% of the same number?  
\_\_\_\_\_
7. 75% of a number is 90. What is 25% of the number?  
\_\_\_\_\_
8. A student scored 72 out of 80. What percentage did the student score?  
\_\_\_\_\_
9. A number is 40% of 250. Another number is 25% of 400. Which number is greater? Explain.  
\_\_\_\_\_

## C. Think like a mathematician

10. Find two different whole numbers for which 50% of one equals 25% of the other.  
\_\_\_\_\_
11. I am a percentage between 40% and 60%. I am also equal to 0.55. What percentage am I?  
\_\_\_\_\_
12. Create a real-life situation in which 25% is useful, then solve your own problem.  
\_\_\_\_\_

# Worksheet 6 • Percentage Reasoning Challenge

Answer Key

**A**

1. 120 2. 100 3. 120 4. 30 students 5. \$153

**B**

6. 40 7. 30 8. 90% 9. Both are 100, so neither is greater.

**C**

10. Example: 20 and 40. 11. 55%. 12. Answers vary; check that the situation and calculation correctly use 25%.