UNIT TEST #002 | Australian Curriculum Mathematics | UTM7T1U2

ACACIA TUTORING

# Fractions, Decimals, and Percentages

# 7 Unit Test

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**Instructions:** Read all questions carefully to ensure you understand what is being asked. When completing your official tests / exams, your grade will be based upon your: **understanding, fluency, reasoning, and problem solving,** so ensure you show all lines of working and draw accurate, labelled diagrams where necessary. (ACiQ|9.0 Mathematics standard elaborations found on final page (general assessment marking standards)). [Practise tests are marked out of a score of 10]. For multiple choice questions, tick or fill in the circle next to the corresponding letter under the question.

Check your work if you have time. *Remember:* you don't have to start at question one, it's always best to firstly look through the test, highlight the easy looking questions and complete them first, then secondly, go back through and work on the harder questions. Good luck! And remember to breathe!

$$\sum = \frac{}{10} = \quad \%$$

## Part 1: Multiple Choice (2 marks)

### Question 1:

**a) Convert $0.50$ to a fraction in its simplest form.**

**A.** $\frac{1}{2}$ **B.** $\frac{1}{3}$ **C.** $\frac{1}{4}$ **D.** $\frac{1}{5}$

◯ **A** ◯ **B** ◯ **C** ◯ **D**

Space for Q1a...

**b) Convert $0.50$ to a a percentage.**

**A.** $0.5\,\%$ **B.** $5\,\%$ **C.** $50\,\%$ **D.** $500\,\%$

◯ **A** ◯ **B** ◯ **C** ◯ **D**

Space for Q1b…

## Question 2:

**a) What is $125\,\%$ as a fraction in its simplest form?**

**A.** $\frac{5}{4}$ **B.** $\frac{4}{5}$ **C.** $\frac{125}{100}$ **D.** $\frac{25}{20}$

◯ **A** ◯ **B** ◯ **C** ◯ **D**

Space for Q2a…

**b) What is $\frac{4}{5}$ as a decimal?**

**A.** $0.2$ **B.** $0.4$ **C.** $0.6$ **D.** $0.8$

◯ **A** ◯ **B** ◯ **C** ◯ **D**

Space for Q2b…

## Part 2: Short Answer (4 marks)

### Question 3:

**a) Arrange in ascending order:** $0.7,\ \frac{3}{4},\ 80\,\%\,,\ 0.78$**.**

**b) Perform the following four operations: I)** $-3+7,$ **II)** $\frac{3}{4}-\frac{1}{2},$ **III)** $0.8\times 0.5,$ **IV)** $20\,\%$ **of** $80.$

## Question 4:

**a) Increase** $80$ **by** $20\,\%$**.**

**b) A cake recipe requires $\frac{1}{4}$ of a cup of sugar. If you want to make half the recipe, how much sugar do you need?**

## Part 3: Problem Solving (4 marks)

### Question 5:

**a) A shop gives a $15\ \%$ discount on all items. If an item costs $\$60$, how much will you pay after the discount?**

**b) Jane had $\$50$ . She spent $\frac{2}{5}$ of her money on books and then $\frac{1}{3}$ of the remainder on snacks. How much money does she have left?**

## Question 6:

**a) A recipe calls for $\frac{4}{5}$ cup of milk, but you only have $0.7$ cups. How much more milk do you need?**

**b) During a sale, the price of a book is reduced by $20\,\%$. If the sale price is $\$30$, what was the original price rounded to the nearest ten cents?**

## Solutions

**1a. (0.5 marks)**

A. $\frac{1}{2}$.

$$0.50 = \frac{50}{100}$$
$$= \frac{50 \div 25}{100 \div 25}$$
$$= \frac{2}{4}$$
$$= \frac{2 \div 2}{4 \div 2}$$
$$= \frac{1}{2}.$$

**b. (0.5 marks)**

C. $50\,\%$.

$$0.50 \times 100 = 50\,\%.$$

**2a. (0.5 marks)**

A. $\frac{5}{4}$.

Convert percentage to fraction:

$$125\,\%$$
$$= \frac{125 \div 25}{100 \div 25}$$
$$= \frac{5}{4}.$$

**b. (0.5 marks)**

D. 0.8 .

Decimal:

$$4 \div 5$$
$$= \frac{4 \times 2}{5 \times 2}$$
$$= \frac{8}{10}$$
$$= 0.8.$$

$\frac{1}{10} = 0.1$

$\frac{1}{100} = 0.01$

$\frac{1}{1{,}000} = 0.001$

$\frac{1}{10{,}000} = 0.0001$

**3a. (0.5 mark)**

First convert all to decimals:

$0.70,\ \frac{3}{4} = (0.75),\ 80\,\% = (0.80),\ 0.78.$

Ascending order:

$0.7\ \frac{3}{4}\ or\ 75\,\%,\ 0.78,\ 80\,\%$

**b. (1.5 marks)**

→ I) $-3+7=4.\ \ (or\ 7-3=4)$

→ II) $\frac{3}{4}-\frac{1\times 2}{2\times 2}$

$=\frac{3}{4}-\frac{2}{4}$

$=\frac{3-2}{4}$

$=\frac{1}{4}.$

→ III) $0.8\times 0.5=0.4.$

→ IV) $20\,\%$ of $80$

$=\frac{2\cancel{0}}{10\cancel{0}}\times 80$

$=0.2\times 80$

$=16.$

**4a. (1 mark)**

= Original Price + Markup

$=80+(20\,\%\ of\ 80)$

$=80+(\frac{20}{100}\times 80)$

$=80+(0.2\times 80)$

$=80+16$

$=96.$

**b. (1 mark)**

Half of $\frac{1}{4}=\frac{1}{2}\times\frac{1}{4}$

$=\frac{1\times 1}{2\times 4}$

$=\frac{1}{8}$ of a cup of sugar.

**5a. (0.5 marks)**

Discount:

$$= 60 \times 0.15$$
$$= 9$$

Price after discount:

$$= 60 - 9$$
$$= 51 .$$

**b. (1.5 marks)**

Money spent on books:

$$= 50 \times \frac{2}{5}$$
$$= \frac{50 \times 2}{5}$$
$$= \frac{100}{5}$$
$$= 20$$

Money left after books:

$$= 50 - 20$$
$$= 30$$

Money spent on snacks:

$$= 30 \times \frac{1}{3}$$
$$= \frac{30 \times 1}{3}$$
$$= \frac{30}{3}$$
$$= 10$$

Money left:

$$= 30 - 10$$
$$= 20$$

**6a. (1 mark)**

First convert fraction to decimal：

$$\frac{4}{5} = 0.80 \text{ of a cup .}$$

Need $0.80 - 0.70$

$= 0.10$ cups more.

**b. (1 mark)**

$$\begin{aligned}
\text{Sale Price} &= \text{Original Price} - \text{Discount} \\
&= \text{Original Price} - (\text{Original Price} \times \text{Discount}) \\
30 &= P - (P \times 0.3) \text{ (where } P \text{ is the Original Price)} \\
30 &= 1P - 0.3P \\
30 &= 0.7P \\
\frac{30}{0.7} &= \frac{\cancel{0.7}P}{\cancel{0.7}} \\
42.857 &\approx P \\
P &\approx 42.857 \text{ (Round up)} \\
P &\approx \$42.90 .
\end{aligned}$$

The original Price is approximatley $\$42.90$.

$$\sum = \frac{}{10} = \quad \%$$

# General Assessment Marking Standards

**Remember:** When your official tests are marked, they won't be a score out of 10, they will be a grade (A,B,C,D,E) based on the following standards:

ACiQ | v9.0

## Year 7 Mathematics standard elaborations

| | | A | B | C | D | E |
|---|---|---|---|---|---|---|
| | | **The folio of student work contains evidence of the following:** | | | | |
| Mathematical proficiencies | Understanding | accurate and consistent identification, representation, description and connection of mathematical concepts and relationships in complex unfamiliar, complex familiar, and simple familiar situations | accurate identification, representation, description and connection of mathematical concepts and relationships in complex familiar and simple familiar situations | identification, representation, description and connection of mathematical concepts and relationships in simple familiar situations | partial identification, representation and description of mathematical concepts and relationships in some simple familiar situations | fragmented identification, representation and description of mathematical concepts and relationships in isolated and obvious situations |
| | Fluency | choice, use and application of comprehensive facts, definitions, and procedures to find solutions in complex unfamiliar, complex familiar, and simple familiar situations | choice, use and application of effective facts, definitions, and procedures to find solutions in complex familiar and simple familiar situations | choice, use and application of facts, definitions, and procedures to find solutions in simple familiar situations | choice and use of partial facts, definitions, and procedures to find solutions in some simple familiar situations | choice and use of fragmented facts, definitions and procedures to find solutions in isolated and obvious situations |
| | Reasoning | comprehensive explanation of mathematical thinking, strategies used, and conclusions reached in complex unfamiliar, complex familiar, and simple familiar situations | detailed explanation of mathematical thinking, strategies used, and conclusions reached in complex familiar and simple familiar situations | explanation of mathematical thinking, strategies used, and conclusions reached in simple familiar situations | partial explanation of mathematical thinking, strategies used, and conclusions reached in some simple familiar situations | fragmented explanation of mathematical thinking, strategies used, and conclusions reached in isolated and obvious situations |
| | Problem-solving | purposeful use of problem-solving approaches to find solutions to problems. | effective use of problem-solving approaches to find solutions to problems. | use of problem-solving approaches to find solutions to problems. | partial use of problem-solving approaches to make progress towards finding solutions to problems. | fragmented use of problem-solving approaches to make progress towards finding solutions to problems. |

| Key | shading emphasises the qualities that discriminate between the A–E descriptors |
|---|---|

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