

Practice Tasks

Applied Numeracy



How To Use This Document

General Information

This document is designed to support you in preparing for your online applied numeracy assessment.

It provides an overview of the assessment explaining what it measures and how it works.

It also provides 8 practice questions. After these practice questions, solutions and rationale have been provided to help you gain a deeper understanding. We would encourage you to attempt all the practice questions without looking at the solutions first.

Applied Numeracy

Aon's Applied Numeracy assessment measures your ability to use numerical information and perform mathematical calculations.

In the assessment, you will receive instructions along with an example question that you can take as many times as you like before you start the actual assessment.

How Does The Numerical Reasoning Assessment Work?

You are presented with 20 applied numeracy questions – that is, questions that make you apply numerical reasoning to realistic situations, often using units of measurement (for example, seconds and meters). For each question, you are presented with four answer options, and you have to select the one which is correct. Some incorrect answer options may be based around commonly misapplied rules, so be careful! Each question is independent of all other questions.

The test is split into four sections, depending on the type of calculation you will need to make: Translation of Units, Rule of Three, Percentage Calculation and Areas and Spaces. Each section is timed separately, giving you 3 minutes to answer 5 questions.

The test is preceded by an example to help you understand the system. Before you start the test, make sure you have a pen and paper as well as a calculator to hand.

Guidance for the Practice Questions

The actual assessment you will take is timed, and you will not necessarily have time to answer all the questions – you just need to work quickly and accurately, to try to get as many correct as possible in the time provided. As such, there is no specific time limit in the practice tests. Try to focus and complete them quickly in a single session.

You should write down your answers as you work through, so that you can compare your answers to the solutions at the end.

To continue to practice, spend time attempting similar calculations using different units of measurement, such as the ones used in these practice tasks. You may wish to spend more time reviewing the example questions here and coming up with variations on them (for example, doubling values to see what answers you reach).

Practice Tasks

Example 1

TRANSLATION OF UNITS 1

A piece of land is 2.86 kilometers long. How many meters is this?



286 meters

2,860 meters

28.6 meters

28,600 meters

Example 2

TRANSLATION OF UNITS 2

A plane needs 1 minute to travel 8,500 m. How fast is it travelling in kilometers per hour?



141.67 kilometers per hour

0.14 kilometers per hour

705 kilometers per hour

510 kilometers per hour

Example 3

RULE OF THREE 1

5 workers need 10 hours to paint a room. How long would 3 workers need?

?

- 16.67 hours
- 12 hours
- 6 hours
- 18 hours

Example 4

RULE OF THREE 2

18 boxes are sold for \$53.50. How much do 24 boxes cost?

?

- 77.50 USD
- 71.33 USD
- 59.50 USD
- 40.13 USD

Example 5

PERCENTAGE CALCULATION 1

An item costs \$145 and shall now be sold with a discount of 28%. What does it cost now?



40.60 USD

117 USD

104.40 USD

140.94 USD

Example 6

PERCENTAGE CALCULATION 2

20% of passengers are eligible for a discount. This is 80 passengers. How many passengers are there in total?



400 passengers

16 passengers

96 passengers

64 passengers

Example 7

AREAS AND SPACE 1

A warehouse is 45 yards wide, 95 yards long and 8 yards tall. What is its total volume?



4,635 cubic yards

34,200 cubic yards

4,275 cubic yards

51,200 cubic yards

Example 8

AREAS AND SPACE 2

A vehicle has tires with a diameter of $d = 22$ inches ($\pi = 3.14$). What distance (in inches) has the vehicle driven if the tires turned 20 times?



440 inches

30,395.2 inches

7,598.8 inches

1,381.6 inches

Solutions & Rationale

Example 1 - Solution

TRANSLATION OF UNITS 1

A piece of land is 2.86 kilometers long. How many meters is this?



286 meters

2,860 meters

28.6 meters

28,600 meters

Answer: 2,860 meters

Rationale: 1 kilometer = 1000 meters

Thus 2.86 kilometers = $2.86 * 1000 = 2,860$ meters

Example 2 - Solution

TRANSLATION OF UNITS 2

A plane needs 1 minute to travel 8,500 m. How fast is it travelling in kilometers per hour?



141.67 kilometers per hour

0.14 kilometers per hour

705 kilometers per hour

510 kilometers per hour

Answer: 510 kilometers per hour

Rationale: $Speed = \frac{Distance}{Time}$

1 minute = $\frac{1}{60}$ hours

Thus, speed = 8.5 kilometers / ($\frac{1}{60}$ hours)

= 510 kilometers per hour

Example 3 – Solution

RULE OF THREE 1

5 workers need 10 hours to paint a room. How long would 3 workers need?

?

16.67 hours

12 hours

6 hours

18 hours

Answer: 16.67 hours

Rationale: Total worker hours needed to paint the room

= 5 workers * 10 hours

= 50 worker hours

Thus, if you only had 3 workers, the same task would take $\frac{50 \text{ worker hours}}{3 \text{ workers}} = 16.67 \text{ hours}$

Note that in some questions you can quickly rule out some answers. For example, in this question if you have less workers, it should take more time to accomplish the task. As such, 6 hours is clearly incorrect.

Example 4 - Solution

RULE OF THREE 2

18 boxes are sold for \$53.50. How much do 24 boxes cost?

?

77.50 USD

71.33 USD

59.50 USD

40.13 USD

Answer: 71.33 USD

Rationale: Cost per box = $\frac{\$53.50}{18} = \2.97 (rounded down slightly)

Cost of 24 boxes = $\$2.97 * 24 = \71.28 - thus it is the closest answer to this.

While you can work this out exactly, there are 2 other techniques that may help you answer:

i) 18/24 simplifies to $\frac{3}{4}$. Therefore, it may be easier to divide by 3 and multiply by 4.

ii) You can approximate the cost of the boxes from \$53.50 to \$54.

$$54/18 = \$3.$$

$$24 * \$3 = \$72.$$

As the actual cost of 18 boxes was a little under \$54, you know the cost of 24 will be a little under \$72.

Example 5 - Solution

PERCENTAGE CALCULATION 1

An item costs \$145 and shall now be sold with a discount of 28%. What does it cost now?

?

40.60 USD

117 USD

104.40 USD

140.94 USD

Answer: 104.40 USD

Rationale: To figure out 28% of a figure, you can multiply by 0.28 (or divide by 100 then multiply by 28).

This is a discount of 28%. That means the cost now is $100\% - 28\% = 72\%$ (or 0.72).

As such, you can take two approaches:

- i) Multiply \$145 by 0.72 (to give you the answer directly).
 $\$145 * 0.72 = \104.40
- ii) Multiply \$145 by 0.28. This gives you the discount, \$40.60.

Now subtract that from the original cost:

$$\$145 - \$40.60 = \$104.40$$

Example 6 - Solution

PERCENTAGE CALCULATION 2

20% of passengers are eligible for a discount. This is 80 passengers. How many passengers are there in total?



400 passengers

16 passengers

96 passengers

64 passengers

Answer: 400 passengers

Rationale: You can work this out directly as a percentage by dividing 80 by 20 to give you 1% of the total – this is 4.

Then multiply this by 100 to give you 100% - 400 passengers.

However, you may know that 20% is a fifth of the total. Because this is the case, you can work out the answer simply by multiplying by 5. $80 \times 5 = 400$.

Example 7 – Solution

AREAS AND SPACE 1

A warehouse is 45 yards wide, 95 yards long and 8 yards tall. What is its total volume?

?

4,635 cubic yards

34,200 cubic yards

4,275 cubic yards

51,200 cubic yards

Answer: 34,200 cubic yards

Rationale: The volume of the space is worked out by multiplying the width, length and height. In this case, 45 yards * 95 yards * 8 yards.

You could also estimate this answer out using approximation. Even if it does not give you the precise answer, it can give you a strong guess by narrowing down realistic answer options.

In this case, you could round up all of the values to give you the following simpler equation:

50 yards * 100 yards * 10 yards

This gives you 50,000 yards. As all of the original figures were rounded up, you are looking for a value less than this. There is only one figure in the range you want that is not over 50,000.

Example 8 - Solution

AREAS AND SPACE 2

A vehicle has tires with a diameter of $d = 22$ inches ($\pi = 3.14$). What distance (in inches) has the vehicle driven if the tires turned 20 times?

?

440 inches

30,395.2 inches

7,598.8 inches

1,381.6 inches

Answer: 1,381.6 inches

Rationale: To solve this question, you need to have some knowledge of how to work out the circumference of a circle from its diameter.

Circumference = π * diameter

= $3.14 * 22$ inches

= 69.08 inches

The circumference gives you the total distance the vehicle would travel when its tire rotates 1 time, so you need to multiply this by 20. This gives you the answer.