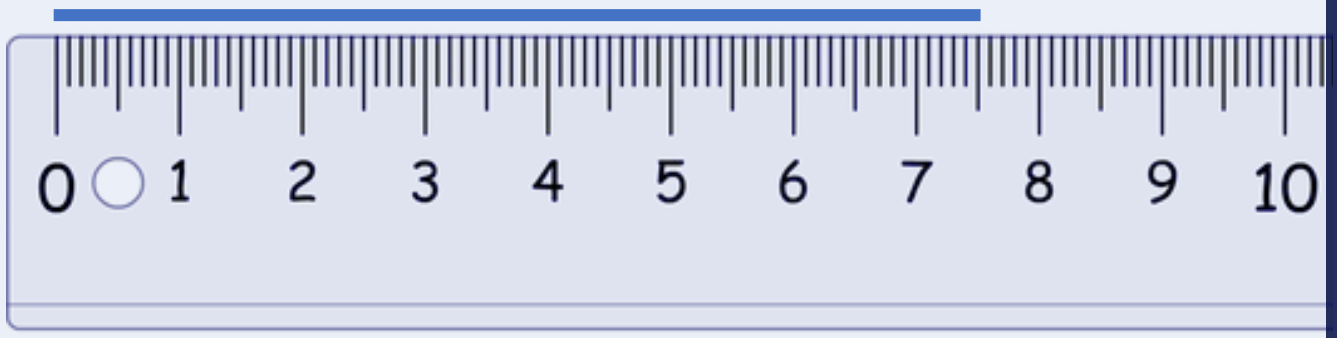
Decimals and Scales

Answer the questions below.



1. Write $\frac{1}{2}$ as a decimal.
   0.5
2. Write 0.25 as a fraction.
   $\frac{1}{4}$
3. Name a piece of equipment you could use to measure the length of an object.
   Ruler, measuring tape
4. Write 65 % as a decimal.
   0.65
5. State the length of the line shown above.
   Length = 7.5 (cm)

Do Now

Decimals and Scales

Maths in Science Lesson 1

Science
Mastery



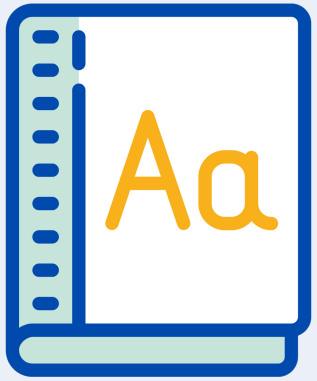
- **Year 7 Lesson 1: Decimals and Scales**

Year 7 Lesson 2: SI units and Quantities
Year 7 Lesson 3: Substitution
Year 7 Lesson 4: Scales on a Graph
Year 7 Lesson 5: Data and Results Tables
Year 7 Lesson 6: Mean and Range
Year 7 Lesson 7: Pie and Bar Charts
Year 7 Lesson 8: Line Graphs and Lines of Best Fit

Following this lesson, students will be able to:

- Use expressions in decimal form
- Identify the value of intervals on a scale
- Make accurate readings from different scales

Key Words:



scale

decimal

interval

Lesson Objectives

This is the fix-it portion of the lesson

The **fix-it** is an opportunity to respond to gaps in knowledge, especially those identified by the previous lesson's exit ticket.

- The teacher should customise this slide as needed, to facilitate
  - **reteach**, **explanation, demonstration** or **modelling** of ideas and concepts that students have not yet grasped or have misunderstood.
  - **practise** answering specific questions or of key skills.
  - **redrafting** or **improving** previous work.

Fix-it

Decimals Warm Up

Write each of these fractions in decimal form:

1. $\frac{1}{2}$ 0.5
2. $\frac{1}{4}$ 0.25
3. $\frac{1}{8}$ 0.125
4. $\frac{1}{10}$ 0.1
5. $\frac{1}{5}$ 0.2
6. $\frac{1}{20}$ 0.05

Write each of these fractions in decimal form:

7. 25 % 0.25
8. 10 % 0.1
9. 30 % 0.3
10. 15 % 0.15
11. 85 % 0.85
12. 50 % 0.5

Activity

Decimals Warm Up

Arrange each set of numbers in size order from smallest to largest:

A. 0.5, 0.05, 0.55, 0.005

0.005, 0.05, 0.5, 0.55

B. 0.29, 1.18, 2.16, 0.24, 0.11

0.11, 0.24, 0.29, 1.18, 2.16

C. 6.96, 7.85, 8.99, 7.84, 7.94

6.96, 7.84, 7.85, 7.94, 8.99

D. 46.37, 46.8, 46.2, 46.9, 46.34

46.2, 46.34, 46.37, 46.8, 46.9

E. 6.754, 6.553, 5.661, 5.655, 6.544

5.655, 5.661, 6.544, 6.553, 6.754

F. 7.539, 7.542, 7.424, 5.423, 6.328

5.423, 6.328, 7.424, 7.539, 7.542

Activity

Reading a Scale







Difference = 1 cm

Number of jumps = 10

Each jump = $\frac{1\ cm}{10}$

Each jump = 0.1 cm

The length of the line is **3.4 cm**

Reading a Scale

What value does the arrow show?

What is the difference between 20 and 30?

10

How many jumps (intervals) are there between 20 and 30?

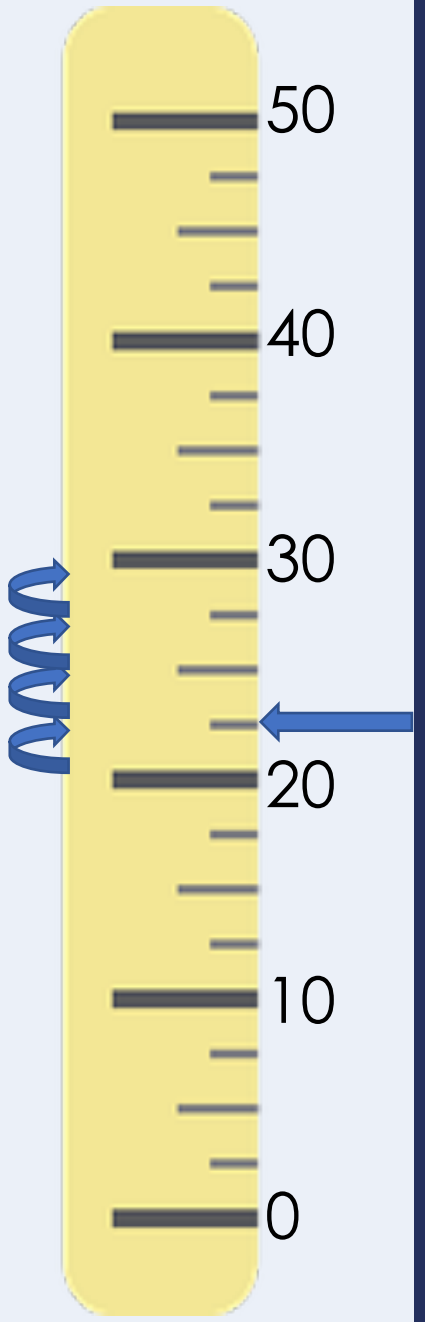
4

Each jump = $\frac{10}{4}$

Each jump = 2.5

What value does the arrow show?

22.5



Reading a Scale

What value does the arrow on this pressure gauge show?

What is the difference between 20 and 30? 10

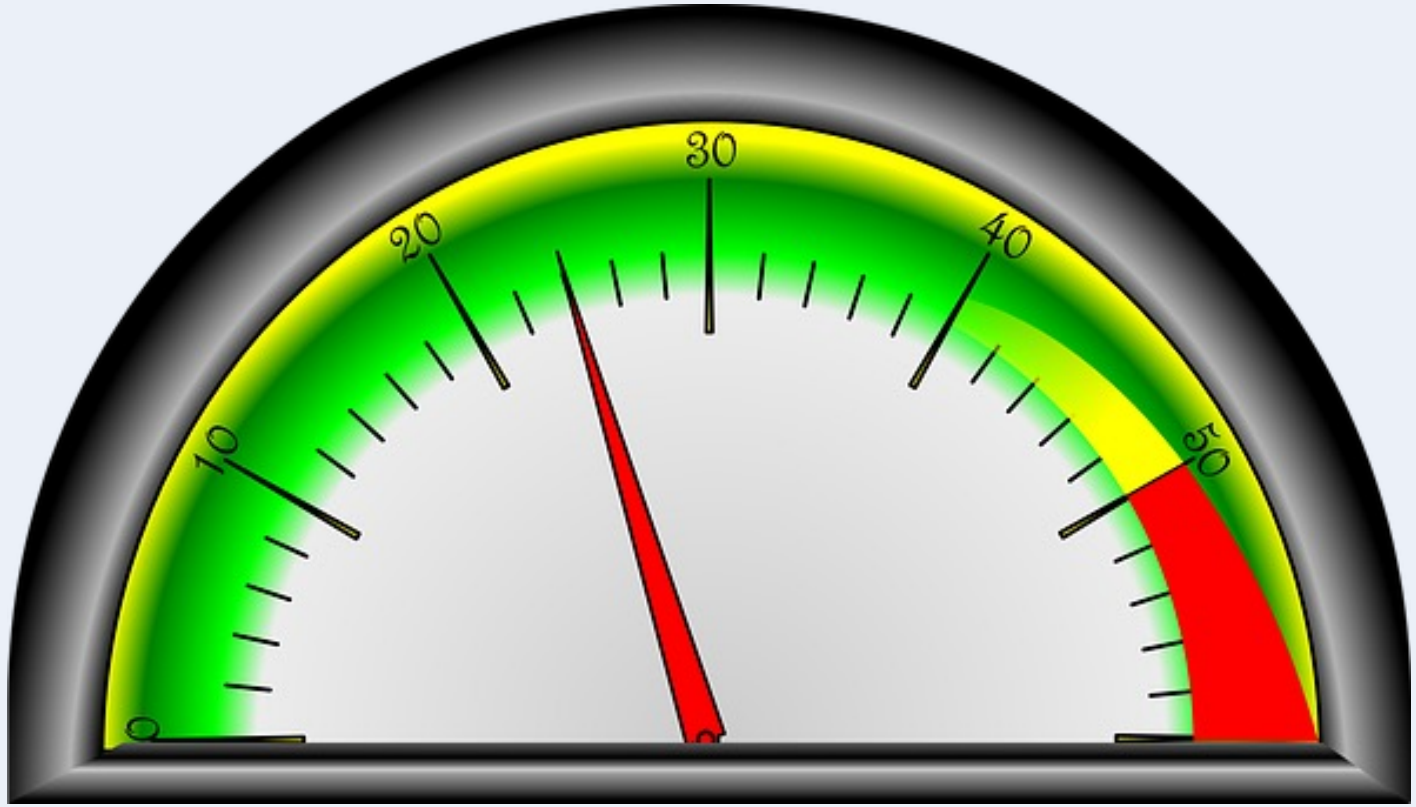
How many jumps (intervals) are there between 20 and 30? 5

Each jump = $\frac{10}{5}$

Each jump = 2

What value does the arrow show?

24



Reading a Scale

What temperature does this thermometer show?

What is the difference between 37.5 and 38?

0.5

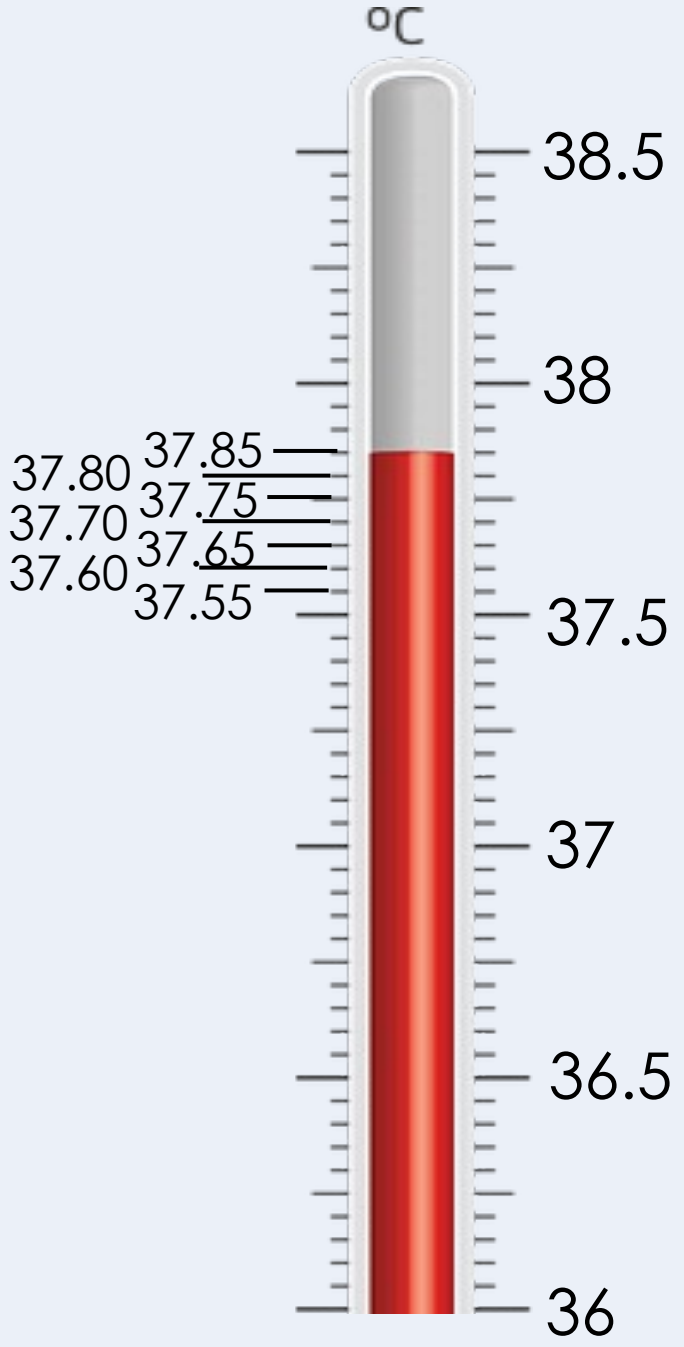
How many jumps (intervals) are there between 37.5 and 38? 10

Each jump = $\frac{0.5}{10}$

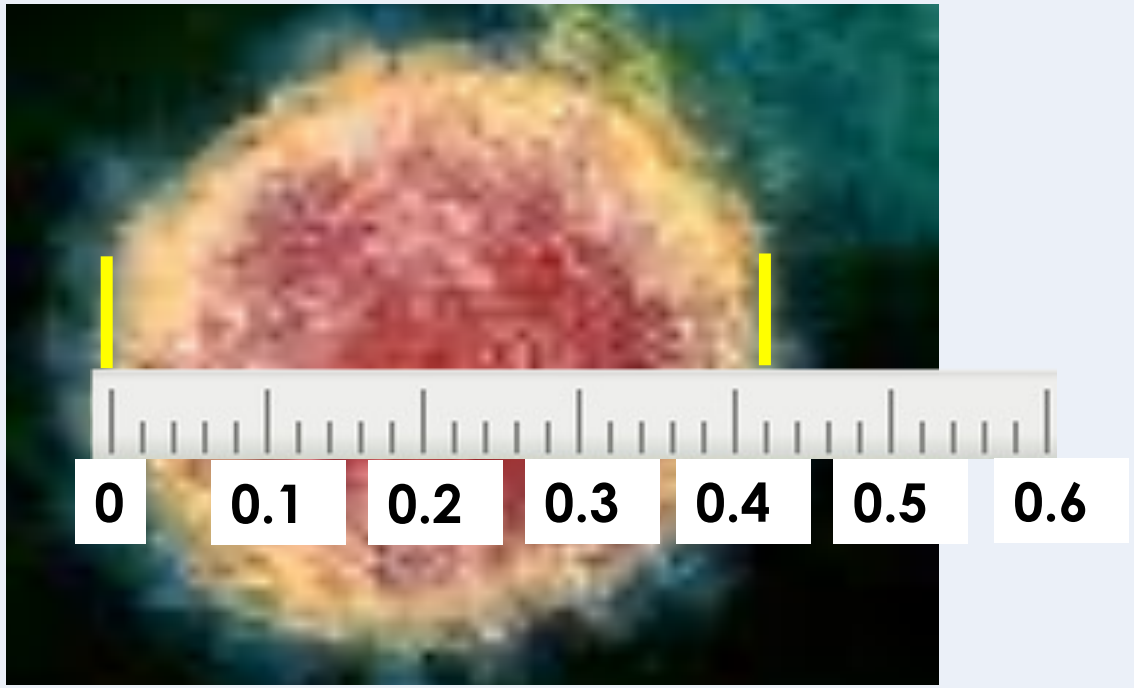
Each jump = 0.05 °C

What temperature does the thermometer show?

37.85 °C



Reading a Scale



A scientist is looking at a virus under a microscope.

This scale bar shows measurements in micrometres (μm)

What is the length of this virus?

What is the difference between 0.4 μm and 0.5 μm? 0.1

How many jumps (intervals) are there between 0.4 μm and 0.5 μm? 5

$$\text{Each jump} = \frac{0.1}{5}$$

Each jump = 0.02 °C

What is the length of this virus? 0.42 μm

Who is correct?

Two students are reading the scale on this thermometer.

This shows a temperature of 74 °C because the red line is nearly at 75 °C.

There are 5 intervals between 70 °C and 75 °C so each interval is worth 1 °C.

There are 4 intervals between 70 °C and 75 °C so each interval is worth 1.25 °C.



Check for understanding

Reading a scale

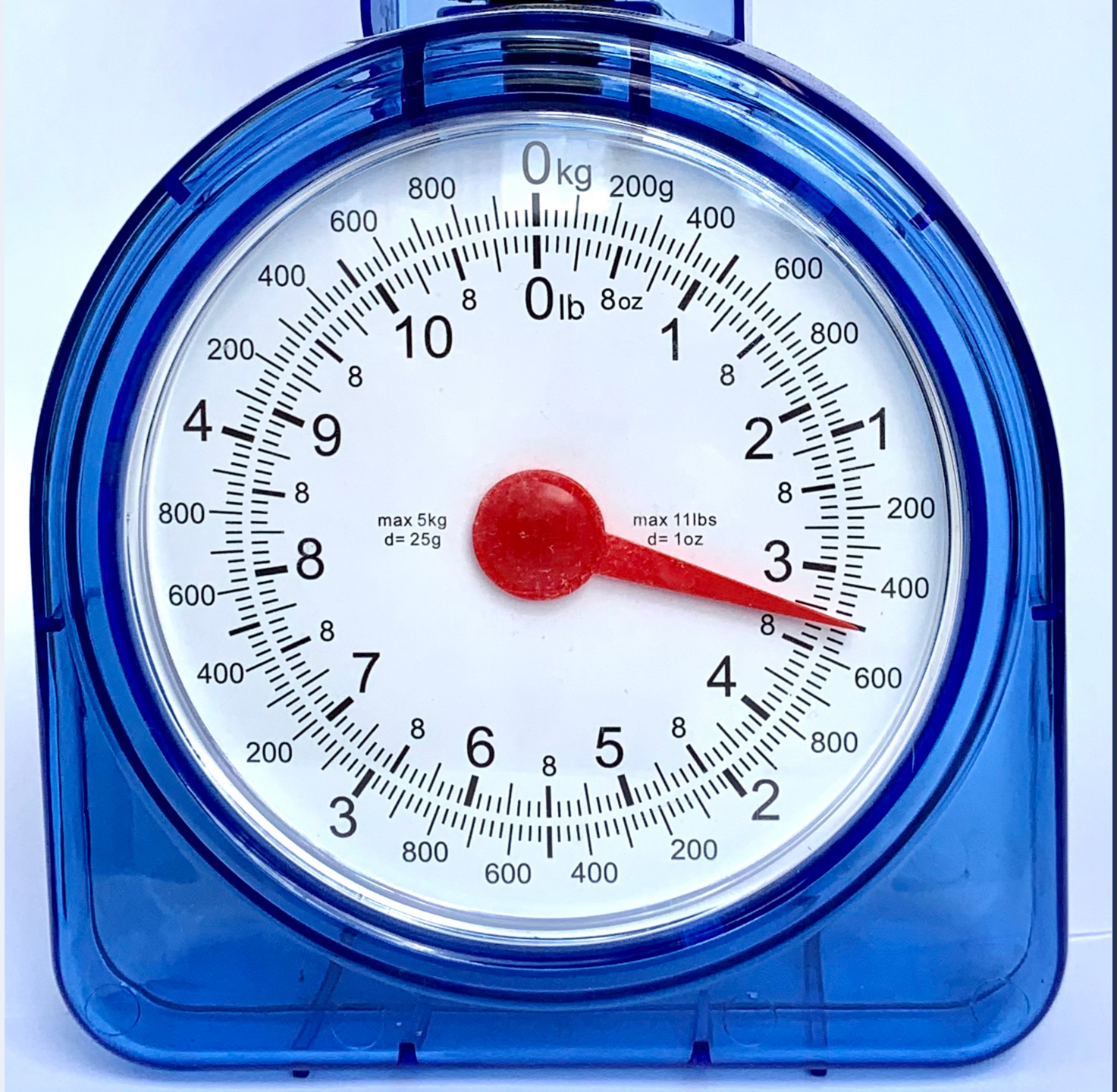
Describe the process you would use to find the mass shown by this piece of apparatus.

What value is shown in kg?

This apparatus also shows the mass in lbs (pounds) and oz (ounces).

How many ounces are there in 1 lb?

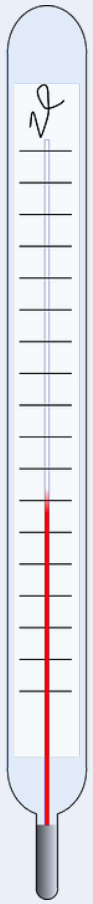
What value is shown in lb?



Talk Task

Reading Scales

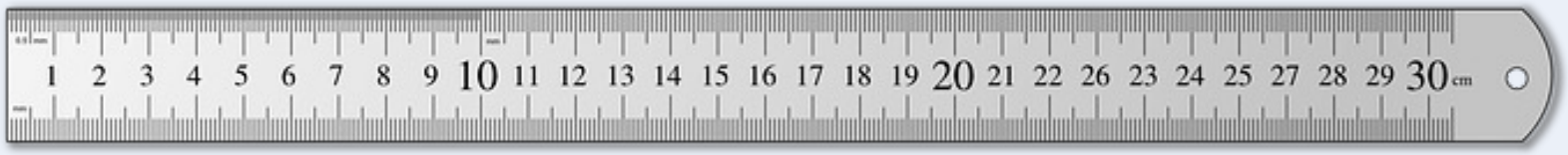
Determine the value shown on each piece of measuring equipment.













Activity

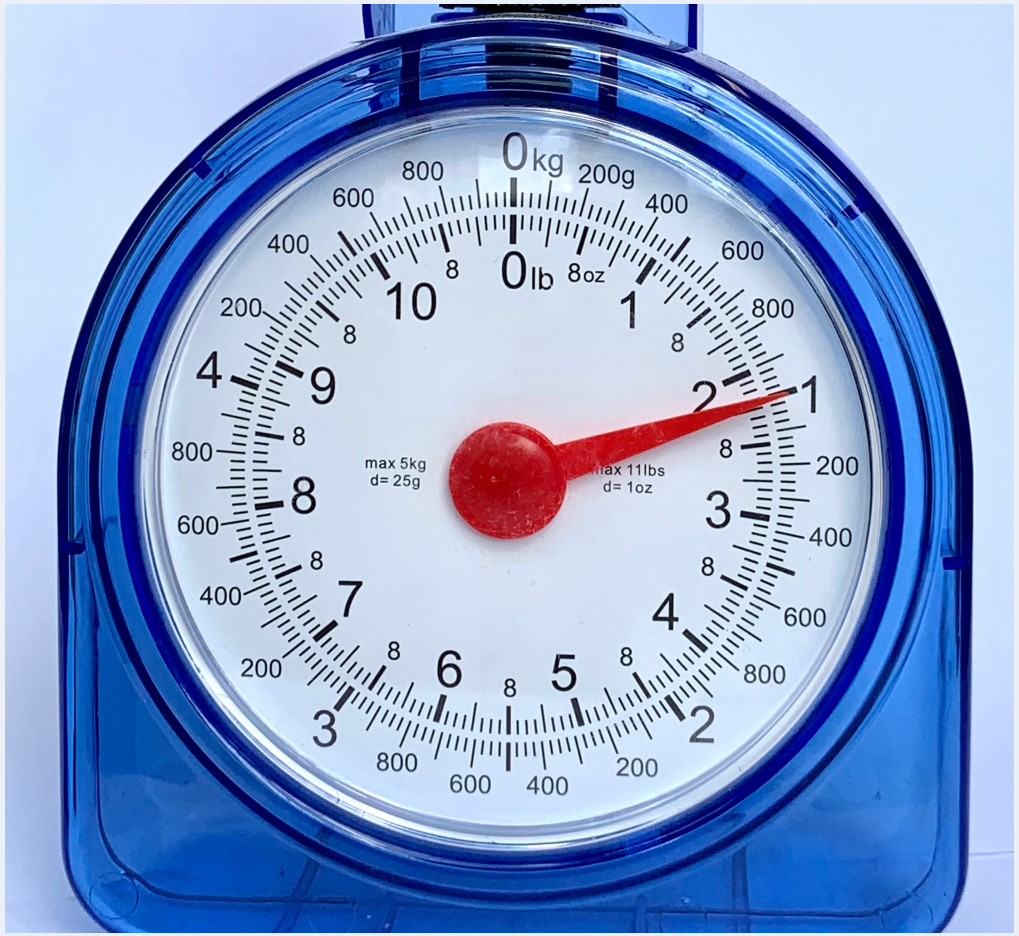
Answer the questions below.

1. Which of these decimal numbers is the largest?

- ☐ A. 5.075
- ☐ B. 5.705
- ☑ C. 5.750

2. What value (in kg) is shown on this weighing scale?

- ☑ A. 1 kg
- ☐ B. 2 kg
- ☐ C. 2.4 kg



Exit ticket

Answer the questions below.

3. What is the value of each of the small intervals on this scale?

- ☐ A. 1 mL
- ☐ B. 5
- ☑ C. 0.2 mL



Exit ticket

Feedback

Maths in Science Lesson 1	
What was good about this lesson?	What can we do to improve this lesson?

Send us your feedback by clicking this link. Thank you!