

Foundation GCSE: Reading Scales

Name: _____

Class: _____

Instructions: Answer all questions. Questions are ordered from easiest (1) to hardest (20). Working out should be shown where appropriate.

1. A scale goes from 0 to 10 with 5 equal intervals. What is the value of each small division?
2. A thermometer has markings every 1 degree. If the fluid is 4 units above 0°C , what is the reading?
3. A kitchen scale has divisions every 50g. The pointer is 2 marks past 300g. What weight is shown?
4. A measuring cylinder has 10 divisions between 0ml and 100ml. Water is at the 7th mark. What is the volume?
5. A speedometer has major marks every 20mph with 4 equal subdivisions between them. The needle is on the second mark after 40. What speed is shown?
6. A ruler shows millimeters. A line measures 7cm and 4mm. What is the length in centimeters?
7. A spring balance reads up to 5kg with 10 equal divisions between each kg. The pointer is at 3kg and 6 small divisions. What mass is shown?
8. A dial shows pressure in bar from 0 to 6 with 5 subdivisions per main interval. The needle is 3 subdivisions past 2bar. Read the pressure.
9. A scale is numbered 0, 50, 100. There are 10 intervals between 0 and 50. What does each small division represent?
10. A vertical gauge reads fuel levels from empty (0) to full (1) divided into 8 equal parts. The indicator is at the 5th mark. Express this as a fraction and decimal.
11. A scale reads 2.45cm. How many millimeters past 2cm is this?
12. A measuring jug has markings every 250ml up to 2000ml. The liquid is halfway between 750ml and 1000ml. Find the volume in liters.
13. A barometer scale reads millibars with divisions every 2mb. The needle is 1 division below 1014mb. Find the reading.
14. A scale reads in kg with major divisions at 1, 2, 3kg and 4 subdivisions between each. The pointer is 3 subdivisions past 2kg. Find the mass in grams.
15. A graduated cylinder has total capacity 500ml split into 20 equal divisions. The meniscus is at the 14th division. What is the volume?
16. A circular gauge reads angles from 0 to 90° with marks every 5° and 5 subdivisions between each mark. The pointer is 2 subdivisions past 45° . Read the angle.
17. A scale starts at 50 and ends at 150 with 10 main intervals. The pointer is 3 intervals past 80. What is the value?
18. A bathroom scale reads in pounds. Each major division is 10lbs with 5 subdivisions between. The pointer is 2 subdivisions past 140lbs. What weight is shown?
19. A hybrid scale reads 3.82amps. If the dial has major lines every 1amp and 10 minor lines per amp, how many minor lines past 3 does this represent?
20. A non-linear scale has major points at 2 and 5. A pointer is visually halfway between them on an interpolated scale representing 3.5. State the value.

Answers & Worked Solutions

1. $2 : 10 \div 5 = 2$.
2. 4°C : 4 units above 0.
3. $400\text{g} : 300 + 2(50) = 400$.
4. $70\text{ml} : 7 \times 10 = 70$.
5. 50mph : Each subdivision is $20 \div 4 = 5$, so $40 + 2(5) = 50$.
6. $7.4\text{cm} : 7\text{cm} + 0.4\text{cm} = 7.4\text{cm}$.
7. $3.6\text{kg} : 3 + 6(0.1) = 3.6$.
8. 2.6bar : Each subdivision is 0.2, so $2 + 3(0.2) = 2.6$.
9. $5 : 50 \div 10 = 5$.
10. $\frac{5}{8}$ and 0.625 : 5 out of 8 equal parts.
11. $4.5\text{mm} : 2.45\text{cm} = 24.5\text{mm}$, which is 4.5mm past 20mm.
12. 0.875l : Halfway between 750ml and 1000ml is 875ml = 0.875l.
13. $1012\text{mb} : 1014 - 2 = 1012$.
14. $2300\text{g} : 2\text{kg} + 3(0.1\text{kg}) = 2.3\text{kg} = 2300\text{g}$.
15. $350\text{ml} : 500 \div 20 = 25\text{ml}$ per division, $14 \times 25 = 350$.
16. 47° : Each subdivision is 1° , so $45 + 2(1) = 47$.
17. 110 : Interval size is 10, so $80 + 3(10) = 110$.
18. 144lbs : Each subdivision is 2lbs, so $140 + 2(2) = 144$.
19. 8 minor lines : 0.82 represents 8 minor divisions past 3.
20. 3.5 : Midpoint between 2 and 5.