

Name

Date

GCSE Mathematics 9-1

ESTIMATIONS AND APPROXIMATIONS



Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name and date number.
- Answer all questions.
- Answer the questions in the spaces provided – there may be more space than you need.
- You must show all your working.
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- Calculators may **not** be used.

Information

- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

1 Estimate the value of $\frac{91.25 \times 4.87}{2.31}$

.....
(1)

2 Estimate the value of $\frac{78.9 \times 12.4}{3.06}$

.....
(1)

3 Estimate the value of $\frac{15.8 \times 46.2}{7.03}$

.....
(1)

4 Estimate the value of $\frac{604 \times 2.86}{0.517}$

.....
(1)

5 Estimate the value of $\frac{234 \times 0.094}{4.81}$

.....
(1)

Total (5 marks)

6 Estimate the value of $\frac{892 \times 3.18}{1.42}$

.....
(1)

7 Estimate the value of $\frac{39.6 \times 248}{4.09}$

.....
(1)

8 Estimate the value of $\frac{502 \times 18.7}{9.86}$

.....
(1)

9 A coach takes 248 passengers. Each ticket costs £19.75.
Estimate the total income.

.....
(1)

10 A factory makes 487 items a day. Each sells for £2.93.
Estimate the total sales for 30 days.

.....
(1)

Total (5 marks)

- 11** A supermarket sells 198 bottles of juice at £1.89 each.
Estimate the total revenue.

.....
(1)

- 12** A stadium has 28,950 seats. Tickets cost £37.80.
Estimate the maximum total money from a full stadium.

.....
(1)

- 13** A school prints 492 exam papers. Each has 27 pages.
Estimate the total number of pages printed.

.....
(1)

- 14** A tanker carries 19,860 litres of fuel. Each car uses 47 litres.
Estimate how many cars can be filled.

.....
(1)

- 15** A car travels 498 km in 49 minutes.
Estimate its average speed in km/h.

.....
(1)

Total (5 marks)

- 16** A train travels 397 km in 4.8 hours.
Estimate its average speed.

.....
(1)

- 17** A runner covers 4980 m in 11 minutes.
Estimate her average speed in km/h.

.....
(1)

- 18** A cyclist rides 296 km in 9.1 hours.
Estimate his average speed.

.....
(1)

- 19** A plane flies 1480 km in 2.3 hours. Estimate its average speed.

.....
(1)

- 20** Estimate $\sqrt{45}$

.....
(1)

Total (5 marks)

21 Estimate $\sqrt{503} \times 2.1$

.....
(1)

22 A cinema sells 187 tickets. Each ticket costs £6.89.
Estimate the total money taken from ticket sales.

.....
(1)

23 A lorry carries 248 boxes. Each box weighs 19.7 kg.
Estimate the total weight of the boxes.

.....
(1)

24 A school trip takes 372 students. Each student pays £147.50.
Estimate the total amount collected.

.....
(1)

25 A bus leaves a station every 12 minutes.
Work out an estimate for how many buses leave the station in one year.
You must show how you get your answer.

.....
(1)

Total (5 marks)

26 Estimate $(9.95)^2$

.....
(1)

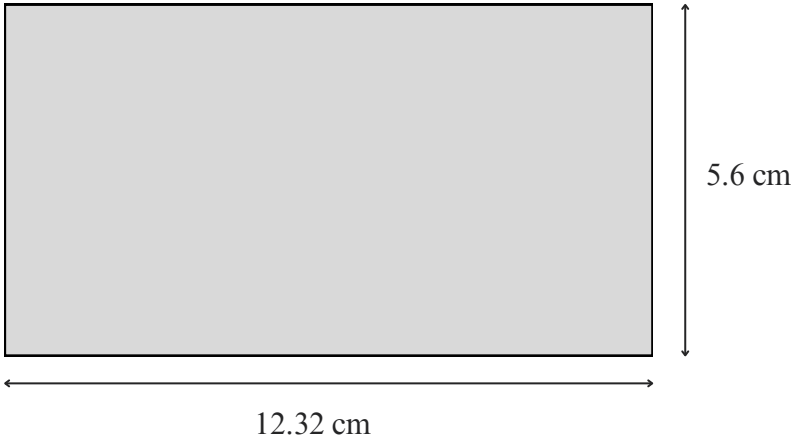
27 Estimate $(4.9)^2$

.....
(1)

28 Estimate $\sqrt{72} + \sqrt{27}$

.....
(1)

28 Estimate the area of the rectangle



.....
(1)