| Name | Date |
|---|---|
| | |

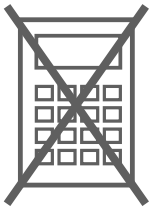
**GCSE Mathematics 9-1**

# Estimation and Approximation

## (Non-Calculator)

| Exam-Style Topic Paper | Total Marks |
|---|---|
| **Time: 33 minutes** | **/ 29** |

**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 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

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

.....

**[1 mark]**

**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 mark]**

**26** Estimate $(9.95)^2$

.....

**[1 mark]**

**27** Estimate $(4.9)^2$

.....

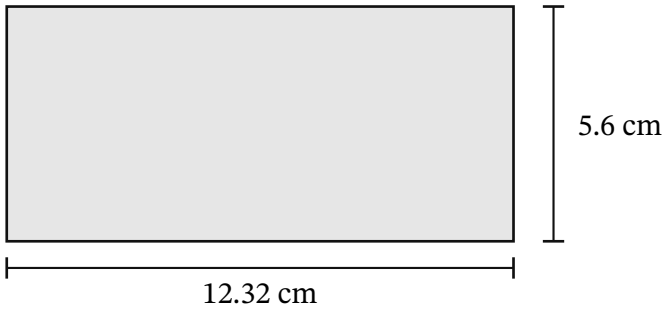
**[1 mark]**

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

.....

**[1 mark]**

**29** Estimate the area of the rectangle




.....

**[1 mark]**