

Examination Practice Questions

You should have:

A ruler, protractor, compasses, a pen, pencil, eraser, calculator.
For some questions, you may need tracing paper.

Instructions

- Use **black** ink or ball-point pen.
- Answer the questions in the spaces provided – *there may be more space than you need*.
- **Calculators may be used.**

Information

- The marks for each question are shown in brackets.
- Use the number of marks for each question as a guide as to how much time to spend on each question. As a rough guide, you can multiply the number of marks by 1.2 to see how many minutes you should spend on a question.
- Questions been carefully compiled from or modelled on a variety of past papers and will generally get more challenging as the document progresses. Some of the later questions will go beyond the core grade level for this topic.

Advice

- Read each question carefully before you start to answer it.
- Don't forget to have fun.
- Check your answers at the end.

Q1.

AtoZrevision.com

In the table below, y is directly proportional to the square of x .

Work out the value of a in the table.

x	2	6
y	12	a

.....
(2 marks)

Q2.

AtoZrevision.com

The following table gives values of x and y where y is inversely proportional to the square of x .

x	1.5	2	3	4
y	16	9	4	2.25

Find a formula for y in terms of x .

.....
(3 marks)

Q3.

AtoZrevision.com

The table shows values of x and y

x	4	16	36
y	6	3	2

y is inverseley proportional to $\sqrt{x}$.

Find the value for the constant of the constant proportionality.

.....
(2 marks)

Q4.

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Given that $y \propto \frac{1}{x^2}$, complete this table of values.

x	1	2	5	10
y			4	1

(4 marks)

Q5.

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$$\begin{array}{r} \text{x } 5 \quad 6 \\ \hline \text{y } 400 \quad 576 \end{array}$$

$$y \propto x^2$$

Write a formula for y in terms of x

.....
(3 marks)

Q6.

AtoZrevision.com

The number of people, n , who can safely be in a room is directly proportional to the area, A , of the room. 12 people can safely meet in a room of area 54 m^2 .

The table shows information about four rooms.

Room	P	Q	R	S
Area (m^2)	36	108	150	210
Cost of hire per day (£)	85	120	195	240

Jack wants to hire a room for 28 people.

Which room should he hire to minimise his cost?

.....
(4 marks)

Q7.

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At a constant temperature, the volume of a gas V is inversely proportional to its pressure p .

By what percentage will the pressure of a gas change if its volume increases by 25%?

.....
(3 marks)

Q8.

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y is directly proportional to the square of x .

Find the percentage increase in y when x is increased by 15%.

.....
(4 marks)

x is proportional to $\sqrt{y}$ where $y > 0$

y is increased by 44%

Work out the percentage increase in x .

.....
(3 marks)