FRACTIONAL INDICES

GRADE 7

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

Write down the value of $16^{\frac{1}{2}}$

4

.....

(1 mark)

Q2. AtoZrevision.com

Find the value of $25^{\frac{1}{2}}$

5

.....

(1 mark)

Q3. AtoZrevision.com

Write down the value of $8^{\frac{1}{3}}$

2

.....

(1 mark)

Q4. AtoZrevision.com

Write down the value of $125^{\frac{1}{3}}$

5

.....

(1 mark)

Q5. AtoZrevision.com

Write down the value of $32^{\frac{1}{5}}$

2

.....

(1 mark)

Q6. AtoZrevision.com

Find the value of $625^{\frac{1}{4}}$

± 5

.....

(1 mark)

Q7. AtoZrevision.com

$8^{\frac{2}{3}}$ is equal to which of the following?

Tick the correct answer.

$5\frac{1}{3}$

✓ 4

6

$8\frac{2}{3}$

$\frac{16}{24}$

(1 mark)

Q8. AtoZrevision.com

Evaluate $16^{\frac{3}{4}}$

8

.....

(1 mark)

Q9. AtoZrevision.com

Find the value of $125^{\frac{2}{3}}$

25

.....

(1 mark)

Q10. AtoZrevision.com

Evaluate $9^{\frac{3}{2}}$

27

(1 mark)

Q11. AtoZrevision.com

Simplify $\left(\sqrt[3]{x}\right)^6$

$\left(x^{\frac{1}{3}}\right)^6$

x^2

(1 mark)

Q12. AtoZrevision.com

Evaluate $\left(\frac{1}{9}\right)^{\frac{3}{2}}$

$\frac{1^{3/2}}{9^{3/2}} = \frac{1}{27}$

(2 marks)

Q13. AtoZrevision.com

Given that $\left(\sqrt[3]{\frac{1}{x}}\right)^4 = x^m$

find the value of m

$\left(\frac{1^{\frac{1}{3}}}{x^{\frac{1}{3}}}\right)^4 = \frac{1}{\frac{1^{4/3}}{x^{4/3}}}$

$x^{-\frac{4}{3}}$

(1 mark)

Q14. AtoZrevision.com

Evaluate

$$\left(8e^{15}\right)^{\frac{2}{3}}$$

B1 for either

A1

$4e^{10}$

.....

(2 marks)

Q15. AtoZrevision.com

Write $\frac{\sqrt[4]{y}}{y}$ in the form y^b where b is a fraction.

M1 $\left[\frac{y^{1/4}}{y^1}\right] = y^{-3/4}$ A1

.....

(2 marks)

Q16. AtoZrevision.com

Given that $\frac{2x^2-x^{\frac{3}{2}}}{\sqrt{x}}$ can be written in the form $2x^p-x^q$, write down the value of p and the value of q.

$\frac{2x^2}{x^{1/2}} - \frac{x^{3/2}}{x^{1/2}} = 2x^{3/2} - x^1$

M1

A1

.....

(2 marks)

Q17. AtoZrevision.com

Solve the equation $\left(25k^2\right)^{\frac{1}{2}} = 15$

$\sqrt{25k^2} = 15$ M1

$25k^2 = 225$

A1 $k^2 = 9 \therefore k = \pm 3$ A1

.....

(2 marks)