

Name:

Date:

Fractional and Negative Indices

GCSE

Edexcel

Mathematics

Grade (9-1)

Mark

Score (%)

— 50

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Materials

For this paper you must have:

- Ruler
- Pencil, Rubber, Protractor and Compass
- Scientific calculator, which you are expected to use when appropriate

Instructions

- Answer all questions
- Answer questions in the space provided
- All working must be shown
- Do all rough work in this book. Cross out any rough work you don't want to be marked

Information

- The marks for the questions are shown in brackets

1 Find the value of 5^{-1}

Leave
blank

.....
(Total for question 1 is 1 mark)

2 Find the value of $(\frac{2}{5})^{-1}$

.....
(Total for question 2 is 1 mark)

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

.....
(Total for question 3 is 2 marks)

4 Find the value of $(36)^{-\frac{1}{2}}$

.....
(Total for Question 4 is 2 marks)

5 Find the value of $(27)^{\frac{1}{3}}$

Leave
blank

.....
(Total for question 5 is 2 marks)

6 Find the value of $(64)^{\frac{1}{3}}$

.....
(Total for question 6 is 3 marks)

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

.....
(Total for question 7 is 3 marks)

8 Find the value of $(343)^{\frac{2}{3}}$

.....
(Total for Question 8 is 3 marks)

9 Find the value of $(8x)^{\frac{2}{3}}$

Leave
blank

.....
(Total for question 9 is 3 marks)

10 Find the value of $(64y^2)^{\frac{1}{2}}$

.....
(Total for question 10 is 3 marks)

11 Find the value of $(\frac{9}{4})^{-\frac{3}{2}}$

.....
(Total for question 11 is 3 marks)

12 Find the value of $(\frac{25}{16})^{-\frac{3}{2}}$

.....
(Total for Question 12 is 3 marks)

13 Find the value of $(\frac{1}{216})^{\frac{1}{3}}$

Leave
blank

.....
(Total for question 13 is 2 marks)

14 Find the value of $(\frac{8}{64})^{-\frac{2}{3}}$

.....
(Total for question 14 is 3 marks)

15 Find the value of $\sqrt[4]{4 \times 4 \times 10^{16}}$

.....
(Total for question 15 is 3 marks)

16 Find the value of $\sqrt[3]{3 \times 9 \times 10^9}$

.....
(Total for Question 16 is 3 marks)

17 Given that $\sqrt{5} \times \sqrt{5} = 5^n$
(a) Find the value n .

Leave
blank

Given that $3 \times \sqrt{3} = 3^n$
(b) Find the value n .

.....

.....

(Total for question 17 is 4 mark)

18 Given that $4^2 = 2^n$
Find n .

.....

(Total for question 18 is 2 marks)

19 Given that $2^{-n} = 1.3$
Find $(2^{-n})^{-2}$

.....

(Total for question 19 is 3 marks)

20 Given that $x = 3^s$ and $y = 3^t$
Find, in terms of x and y ,
(a) 3^{2s-t}

.....

(2)

(b) 3^{s+2t}

.....

(2)

(Total for Question 20 is 4 marks)