POWERS AND ROOTS

Pearson Edexcel - Tuesday 19 May 2020 - Paper 1 (Non-Calculator) Higher Tier

1.

11 (a) Find the value of $\sqrt[4]{81 \times 10^8}$

....

(2)

(b) Find the value of $64^{-\frac{1}{2}}$

....

(2)

(c) Write $\dfrac{3^n}{9^{n-1}}$ as a power of 3

....

(2)

(Total for Question 11 is 6 marks)

Pearson Edexcel - Tuesday 11 June 2019 - Paper 3 (Calculator) Higher Tier

2.

12 Patrick has to work out the exact value of $64^{\frac{1}{4}}$

Patrick says,

" $\frac{1}{4}$ of 64 is 16 so $64^{\frac{1}{4}} = 16$ "

Explain what is wrong with what Patrick says.

....

....

....

(Total for Question 12 is 1 mark)

Pearson Edexcel - Tuesday 6 November 2018 - Paper 1 (Non-Calculator) Higher Tier

3.

14 (a) Work out the value of $\left(\dfrac{16}{81}\right)^{\frac{3}{4}}$

....

(2)

$3^a = \dfrac{1}{9}$ $\qquad$ $3^b = 9\sqrt{3}$ $\qquad$ $3^c = \dfrac{1}{\sqrt{3}}$

(b) Work out the value of $a + b + c$

....

(2)

(Total for Question 14 is 4 marks)

Pearson Edexcel - Thursday 24 May 2018 - Paper 1 (Non-Calculator) Higher Tier

4.

9 (a) Write down the value of $36^{\frac{1}{2}}$

....

(1)

(b) Write down the value of 23^{0}

....

(1)

(c) Work out the value of $27^{-\frac{2}{3}}$

....

(2)

(Total for Question 9 is 4 marks)

Pearson Edexcel - Thursday 24 May 2018 - Paper 1 (Non-Calculator) Higher Tier

5.

13 $\sqrt{5}(\sqrt{8} + \sqrt{18})$ can be written in the form $a\sqrt{10}$ where a is an integer.

Find the value of a.

$a =$ ....

(Total for Question 13 is 3 marks)

Pearson Edexcel - Thursday 2 November 2017 - Paper 1 (Non-Calculator) Higher Tier

6.

10 (a) Write down the value of $100^{\frac{1}{2}}$

....

(1)

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

....

(2)

(Total for Question 10 is 3 marks)

Pearson Edexcel - Thursday 25 May 2017 - Paper 1 (Non-Calculator) Higher Tier

7.

12 (a) Find the value of $81^{-\frac{1}{2}}$

....

(2)

(b) Find the value of $\left(\frac{64}{125}\right)^{\frac{2}{3}}$

....

(2)

(Total for Question 12 is 4 marks)

Pearson Edexcel - Specimen Papers Set 2 - Paper 2 (Calculator) Higher Tier

8.

14 D is directly proportional to the cube of n.

Mary says that when n is doubled, the value of D is multiplied by 6

Mary is wrong.
Explain why.

....

....

....

(Total for Question 14 is 1 mark)

Pearson Edexcel - Specimen Papers Set 2 - Paper 2 (Calculator) Higher Tier

9.

16 (i) Find the value of $\sqrt[5]{3.2 \times 10^{11}}$

....

(ii) Find the value of $10^{\frac{3}{4}}$
Give your answer correct to 1 decimal place.

....

(Total for Question 16 is 2 marks)

Pearson Edexcel - Specimen Papers Set 1 - Paper 1 (Non-Calculator) Higher Tier

10.

11 Write down the value of $125^{\frac{2}{3}}$

....

(Total for Question 11 is 1 mark)

Pearson Edexcel - Wednesday 9 November 2011 - Paper 3 (Non-Calculator) Higher Tier

11.

18. (a) Write down the value of 2^0

.... (1)

$2^y = \dfrac{1}{4}$

(b) Write down the value of y.

$y =$ .... (1)

(c) Work out the value of $9^{-\frac{3}{2}}$

.... (2)

(Total 4 marks)

Pearson Edexcel - Monday 7 June 2010 - Paper 3 (Non-Calculator) Higher Tier

12.

24. Find the value of

(i) 6^0

(ii) $64^{\frac{1}{2}}$

(iii) $\left(\dfrac{27}{8}\right)^{-\frac{2}{3}}$

(Total 4 marks)

Pearson Edexcel - Thursday 5 November 2009 - Paper 3 (Non-Calculator) Higher Tier

13.

14. (a) Write down the value of 5^0

----

(1)

(b) Write down the value of 2^{-1}

----

(1)

(Total 2 marks)

OCR GSCE – Thursday 5 November 2020 – Paper 5 (Non-Calculator) Higher Tier

14.

11 (a) Work out.

$$16^{-\frac{1}{2}}$$

(a) .... [2]

(b) Simplify.

$$\sqrt{6} \times \sqrt{3}$$

(b) .... [2]

OCR GSCE – Tuesday 6 November 2017 – Paper 5 (Non - Calculator) Higher Tier

15.

16 (a) Write $\sqrt{12} + \sqrt{75}$ in the form $k\sqrt{3}$.

(a) .... [3]

(b) Work out.

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

(b) .... [3]

16.

1 Calculate.

(a) $\sqrt{\dfrac{4.8^2 + 3.6^2}{4}}$

(a) .... [2]

(b) $\dfrac{1}{(2 \times 10^4) + (5 \times 10^3)}$

(b) .... [2]

OCR GSCE – Tuesday 13 June 2017 – Paper 6 (Calculator) Higher Tier

17.

17 Show that $\dfrac{\sqrt[3]{81}}{3}$ can be written as $3^{\frac{1}{3}}$. [3]

OCR GSCE – Sample Papers – Paper 6 (Calculator) Higher Tier

18.

7   Without using a calculator, show clearly that $64^{\frac{2}{3}}$ is equal to 16.   [2]

AQA GSCE – Tuesday 19 May 2020 – Paper 1 (Non - Calculator) Higher Tier

19.

3   Which one of these is a square number **and** a cube number?
         Circle your answer.
                                                                              [1 mark]

         100   1000   10 000   1 000 000

26 (a) Show that $\dfrac{14}{\sqrt{7}}$ can be written in the form $a\sqrt{b}$ where a and b are integers.

[2 marks]

_____

_____

_____

_____

_____

26 (b) Work out $2\sqrt{10} \times \sqrt{80} \times \sqrt{18}$

Give your answer as an integer.

[3 marks]

_____

_____

_____

_____

_____

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_____

Answer _____

AQA GSCE – Tuesday 21 May 2019 – Paper 1 (Non - Calculator) Higher Tier

21.

2 Work out the value of $\left(1\frac{2}{3}\right)^2$

Circle your answer.

[1 mark]

$$1\frac{4}{9} \qquad 3\frac{1}{3} \qquad 2\frac{4}{9} \qquad 2\frac{7}{9}$$

AQA GSCE – Thursday 6 June 2019 – Paper 2 (Calculator) Higher Tier

22.

22 Show that $(5\sqrt{3} - \sqrt{12})^2$ simplifies to an integer.

[3 marks]

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_____

AQA GSCE – Tuesday 6 November 2018 – Paper 1 (Non - Calculator) Higher Tier

23.

1   Simplify $\left(5^4\right)^2$

Circle your answer.

[1 mark]

5^6 5^8 25^6 25^8

AQA GSCE – Tuesday 6 November 2018 – Paper 1 (Non - Calculator) Higher Tier

24.

16   Circle the number that is closest to the value of 29^3

[1 mark]

27 000   90   2700   9000

AQA GSCE – Tuesday 6 November 2018 – Paper 1 (Non - Calculator) Higher Tier

25.

17   Work out the exact value of $\left(\dfrac{3}{4}\right)^{-3}$

[2 marks]

_____

_____

_____

Answer _____

AQA GSCE – Monday 24 May 2018 – Paper 1 (Non - Calculator) Higher Tier

26.

1   Work out $\sqrt[3]{64 \times 1000}$

Circle your answer.

[1 mark]

40   80   400   4000

AQA GSCE – Thursday 2 November 2017 – Paper 1 (Non - Calculator) Higher Tier

27.

1   Work out $\sqrt{2^6 + 6^2}$

Circle your answer.

[1 mark]

10   14   50   100

AQA GSCE – Thursday 2 November 2017 – Paper 1 (Non - Calculator) Higher Tier

28.

3   Circle the expression that is equivalent to $\left(4a^5\right)^2$

[1 mark]

$16a^{10}$ $16a^7$ $8a^{10}$ $8a^7$

29.

6   Show that 268 can be written as the sum of a power of 3 and a square number.

[2 marks]

_____

_____

_____

_____

_____

_____

Answer _____

AQA GSCE – Tuesday 13 June 2017 – Paper 3 (Calculator) Higher Tier

30.

2   Which of these values of n makes 2.7×10^{n} a cube number?

Circle your answer.

[1 mark]

| 0 | 1 | 2 | 3 |

AQA GSCE – Sample Paper 1 (Non - Calculator) Higher Tier

31.

2   Simplify $3^4 \times 3^4$

Circle the answer.

[1 mark]

3^8 9^8 3^{16} 9^{16}

32.

1   Work out the square root of 100 million.

Circle your answer.

[1 mark]

1000   10 000   100 000   1 000 000