Name:

Exam Style Questions

Negative Indices
Fractional Indices

Corbettmaths

Equipment needed: Pen and Calculator

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Videos 173, 175

Answers and Video Solutions

1. Find the value of 4^{-2}

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(1)

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2. Work out the value of 3^{-3}

.....

(1)

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3. Noah was asked to work out the value of 9^{-2}

He says "since $9^2 = 81$ that means $9^{-2} = -81$"

Is Noah correct?
Explain your answer.

.....

.....

(1)

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4. Write 7^{-1} as a fraction

.....

(1)

5. Circle the value of 2^{-5}

-32 $\frac{1}{10}$ $\frac{1}{32}$ -10

(1)

---

6. Evaluate 10^{-4}

.....

(1)

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7. Write down the value of 25^{0}

.....

(1)

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8. Write 5^{-3} as a fraction.

.....

(1)

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9. Write down the value of $\left(\frac{5}{3}\right)^{-1}$

.....

(1)

10. Write down the value of $\left(\frac{2}{5}\right)^{-3}$

.....

(2)

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11. Write down the value of $36^{\frac{1}{2}}$

.....

(1)

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12. Circle the value of $100^{\frac{1}{2}}$

10 50 $\frac{1}{10}$ $\frac{1}{50}$

(1)

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13. Write down the value of $1000^{\frac{1}{3}}$

.....

(1)

14. Martin has been asked to work out $27^{\frac{1}{3}}$

He says "since $\frac{1}{3}$ of 27 is 9 that means $27^{\frac{1}{3}} = 9$"

Is Martin correct?
Explain your answer.

.....

.....

(1)

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15. Write down the value of $16^{\frac{1}{4}}$

.....

(1)

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16. Work out the value of $64^{\frac{2}{3}}$

.....

(2)

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

.....

(2)

18. Work out the value of

(a) $27^{\frac{2}{3}}$

.....

(2)

(b) $10000^{\frac{3}{4}}$

.....

(2)

(c) $32^{-\frac{4}{5}}$

.....

(2)

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19. Work out $16^{0.5}$

.....

(1)

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20. Work out $16^{\frac{3}{2}}$

.....

(2)

21. Write down the value of $49^{-\frac{1}{2}}$

.....

(2)

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22. Work out the value of $81^{-\frac{3}{4}}$

.....

(2)

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23. Work out the value of

$$\left(\frac{16}{25}\right)^{\frac{1}{2}}$$

.....

(2)

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24. Work out $\left(\frac{9}{25}\right)^{\frac{3}{2}}$

.....

(3)

25. Work out $\left(\frac{27}{1000}\right)^{\frac{2}{3}}$

.....

(3)

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26. Work out the value of $32^{-0.4}$

.....

(3)

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27. Work out $25^{\frac{1}{2}} \div 2^{-2}$

.....

(3)

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28. Work out $125^{\frac{1}{3}} \times 2^{-3}$

.....

(3)

29. Work out

$$16^{1.5} + 8^0$$

.....

(3)

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30. Work out the value of

$$\left(\frac{49}{100}\right)^{-\frac{1}{2}}$$

.....

(3)

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31. w is greater than 1.

Write in order, from smallest to largest.

$$w^0 \qquad w^3 \qquad \frac{w^3}{w^4} \qquad w^{-2}$$

.....

(4)

32. Work out $2^4 \times 4^{-2}$

.....

(2)

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33. Work out

$$10^{-2}$$

Give your answer as a decimal.

.....

(2)

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34. Simplify fully $4^{-2} \times \left(4^{\frac{1}{3}}\right)^3$

.....

(3)

35. Simplify fully $7 \times 7^0 \times 7^{-1}$

.....

(2)

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36. Isaac claims that the values of two of the numbers below are equal.

$$9^{-\frac{3}{2}} \qquad 3^{-2} \qquad 0.\dot{0}3\dot{7} \qquad 16^{-\frac{3}{4}}$$

Is Isaac correct?
You **must** show your working.

(4)

37. Work out $\dfrac{49^{\frac{1}{2}} + 8^{\frac{4}{3}}}{16^{-\frac{1}{2}}}$

.....

(4)

38. Write the numbers below in the form 2^n

(a) 4

.....

(1)

(b) 8

.....

(1)

(c) 32

.....

(1)

(d) $\frac{1}{2}$

.....

(1)

(e) $\frac{1}{4}$

.....

(1)

(f) $\sqrt{2}$

.....

(1)

(g) $\sqrt{8}$

.....

(2)

39. Write the numbers below in the form 5^n

(a) 5

.....

(1)

(b) 625

.....

(1)

(c) 1

.....

(1)

(d) $\frac{1}{5}$

.....

(1)

(e) $\sqrt{5}$

.....

(1)

(f) $\sqrt{125}$

.....

(2)

(g) $\sqrt{3125}$

.....

(2)

40. Write 8 in the form 4^n

.....

(2)

41. Write 32 in the form 4^n

.....

(2)

42. Write $16^{\frac{3}{4}} \times 4^9$ in the form 2^n

.....

(3)

43. Write $125^{\frac{1}{3}} \div 25^4$ in the form 5^n

.....

(3)