



Name: _____ **Date:** _____ **Score:** _____ / 40

1 Work out, without a calculator, giving each answer as a fraction.

a. $(3\frac{3}{8})^{\frac{2}{3}}$

b. $(6\frac{1}{4})^{-\frac{3}{2}}$

(3 marks)

Answer _____

2 Write down the value of $121^{\frac{1}{2}}$

(1 mark)

Answer _____

3 Priya says that $27^{\frac{1}{3}} = 9$ because $27 \div 3 = 9$

Explain why Priya is wrong.

(1 mark)

Answer _____

4 Work out the value of $(\frac{36}{25})^{\frac{1}{2}}$

(2 marks)

Answer _____

5

- a. Work out the value of $8^{\frac{2}{3}}$
b. Work out the value of $25^{-\frac{1}{2}}$
c. Work out the value of 10^{-2}

(3 marks)

Answer _____

6Simplify fully $(27a^9b^6)^{\frac{2}{3}}$

(3 marks)

Answer _____

7

- a. Work out the value of $64^{-\frac{2}{3}}$
b. Work out the value of $(\frac{81}{16})^{-\frac{3}{4}}$

(4 marks)

Answer _____

8

$$9^x = \frac{1}{27}$$

Find the value of x.

(3 marks)

Answer _____

9

a. $8^n \times 2^5 = 4^7$

Find the value of n.

b. Write $x\sqrt{x}$ as a single power of x.

(4 marks)

Answer _____

10

a. Work out the value of $27^{-\frac{2}{3}}$

b. $4^x = 32$

Find the value of x.

(4 marks)

Answer _____

11

a. Work out the value of $(\sqrt{3})^6$

b. Work out the value of $(\frac{64}{125})^{-\frac{2}{3}}$

c. $32^n = \frac{1}{\sqrt{8}}$

Find the value of n.

(6 marks)

Answer _____

12 $(x + 2x^{-1})^2 = x^2 + a + bx^{-2}$ for all non-zero x .

Find the value of a and the value of b .

(3 marks)

Answer _____

13 $(27x^a)^{\frac{1}{3}} = bx^2$ for all positive x .

Find the value of a and the value of b .

(3 marks)

Answer _____

End of questions | Total 40 marks