1 Circle the value of 5^3

[1 mark]

8 5+3

15 5×3

25 5^2

125 (1)

2 Write $27 \times \left(3^2\right)^7$ as a single power of 3

[3 marks]

(1) $3^3 \times 3^{14}$ (1)

$= 3^{3+14}$

$= 3^{17}$ (1)

Answer 3^{17}

3 Work out

cube root of 512 : reciprocal of 0.4

Give your answer in the form n : 1

[3 marks]

$\sqrt[3]{512} = 8$ (1) , $\frac{1}{0.4} = \frac{10}{4} = 2.5$ (1)

$8 : 2.5$ $\quad$ $8 \div 2.5 = 3.2$

Answer 3.2 (1) : 1

4 The square root of x is 4

$x = 16$

Circle the value of x^2

$x^2 = 16^2 = 256$

[1 mark]

256 (1) 2 16 8

5 (a) Work out $\frac{3^{12}}{3^7}$

Give your answer as a whole number.

[2 marks]

$3^{12-7} = 3^5$

$= 243$ (2)

Answer 243

5 (b) Simplify $8 \times 2^6 \times 2^4$

Give your answer as a power of 2

[2 marks]

$8 = 2^3$

$2^3 \times 2^6 \times 2^4$

$= 2^{3+6+4} = 2^{13}$

Answer 2^{13} (2)

6 (a) Calculate $2^7 \times 5^2$

[1 mark]

Answer 3200 (1)

6 (b) Calculate $\sqrt[4]{20\,736}$

[1 mark]

Answer 12 (1)

7 (a) Work out $(-8)^2$

[1 mark]

64

Answer 64 (1)

7 (b) Work out 10^3

[1 mark]

$10 \times 10 \times 10 = 1000$

Answer 1000 (1)

8 $2^a \times 3 \times 5^2 = 600$

Work out the value of a.

You **must** show your working.

[3 marks]

$2^a \times 3 \times 25 = 600$ (1)

$2^a \times 75 = 600$

$2^a = \frac{600}{75} = 8$ (1)

$2^a = 8$

$a = 3$ (1)

$a =$ 3

9 Circle the value of $3^2 + 4^2$ 9 + 16 = 25

[1 mark]

14 17 25 49

1

10 (a) k is a whole number between 40 and 50

The cube root of k is 3, to the nearest whole number.

Work out the **largest** possible value of k.

[2 marks]

$3.5^3 = 42.875$ (1)

$k = 42$

Answer 42 (1)

10 (b) Fay tries to solve $x^2 = 100$

She says,

"The only possible value of x is 10"

Give a reason why she is **not** correct.

[1 mark]

x could also be -10 (1)

11 (a) Work out $2.8^4 + \sqrt{158.76}$

Give your answer as a decimal.

[2 marks]

$2.8^4 = 61.4656$

$\sqrt{158.76} = 12.6$

$61.4656 + 12.6 = 74.0656$

Answer 74.0656 (2)

12 (a) Write down **one** cube number between 100 and 300

[1 mark]

Answer 125 (1)

13 (a) Write down the value of 3^2

[1 mark]

$3^2 = 9$

Answer 9 ✓1

13 (b) Write down the value of $\sqrt{144}$

[1 mark]

$\sqrt{144} = 12$

Answer 12 ✓1

13 (c) Work out the value of 2^4

[1 mark]

$2 \times 2 \times 2 \times 2 = 16$

Answer 16 ✓1

14 Calculate $\sqrt{625} + 7^3$

[2 marks]

$\sqrt{625} = 25$, $7^3 = 343$

$25 + 343 = 368$

Answer 368 ✓ (2)