

Using a calculator to solve problems using Powers and Roots

A Copy the question, then use x^2 button to work out these

1. 9^2
2. 21^2
3. 1.2^2
4. 0.2^2
5. 3.1^2
6. 100^2
7. 25^2
8. 8.7^2
9. 0.9^2
10. 81.4^2

B Copy the question, then use x^3 or x^{\square} button to work out these

1. 6^3
2. 2^8
3. 3^5
4. 10^5
5. 4^3
6. 0.1^3
7. 1.7^4
8. $3^4 \times 7$
9. $5^3 \times 10$

C Copy and use the $\sqrt{\quad}$ button to work these out, round to 1 d.p.

1. $\sqrt{10}$
2. $\sqrt{29}$
3. $\sqrt{107}$
4. $\sqrt{19.7}$
5. $\sqrt{2406}$
6. $\sqrt{58.6}$
7. $\sqrt{0.15}$
8. $\sqrt{0.727}$

D Use the $\sqrt[3]{\quad}$ button to work out these.

1. $\sqrt[3]{64}$
2. $\sqrt[3]{125}$
3. $\sqrt[3]{1000}$
4. Estimate $\sqrt{50}$
5. Estimate $\sqrt{120}$

E Puzzle

1. What is the largest number you can make using four 2's.

2. If $3^{\triangle} + 7^{\circ} = 76$

And $\triangle \times \circ = \star$

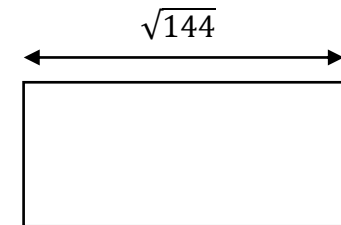
What is the value of \star ?

F Reasoning

1. Find a cube number which is greater than 100 but less than 200?
2. Mark says that 6^3 is 18. Is Mark correct? Explain your answer.
3. Jacob thinks that the difference between two consecutive cube numbers is always odd. Is Jacob correct. Give examples to justify your answer.

G Problem Solving

1. The length of a rectangle is four times its width. Work out its perimeter.



2. Last year my age was a square number, next year it will be a cube number. How old am I? How long must I wait until my age is both a square and cube number?

Using a calculator to solve problems using Powers and Roots

A Copy the question, then use x^2 button to work out these

1. $9^2 = 81$
2. $21^2 = 441$
3. $1.2^2 = 1.44$
4. $0.2^2 = 0.04$
5. $3.1^2 = 9.61$
6. $100^2 = 10000$
7. $25^2 = 625$
8. $8.7^2 = 75.69$
9. $0.9^2 = 0.81$
10. $81.4^2 = 6625.96$

B Copy the question, then use x^3 or x^{\square} button to work out these

1. $6^3 = 216$
2. $2^8 = 256$
3. $3^5 = 243$
4. $10^5 = 100\,000$
5. $4^3 = 64$
6. $0.1^3 = 0.001$
7. $1.7^4 = 8.3521$
8. $3^4 \times 7 = 81 \times 7 = 567$
9. $5^3 \times 10 = 125 \times 10 = 1250$

ANSWERS

C Copy and use the $\sqrt{\quad}$ button to work these out, round to 1 d.p.

9. $\sqrt{10} = 3.16... = 3.2$
10. $\sqrt{29} = 5.38... = 5.4$
11. $\sqrt{107} = 10.34... = 10.3$
12. $\sqrt{19.7} = 4.43... = 4.4$
13. $\sqrt{2406} = 49.05... = 49.1$
14. $\sqrt{58.6} = 7.65... = 7.7$
15. $\sqrt{0.15} = 0.38... = 0.4$
16. $\sqrt{0.727} = 0.85... = 0.9$

D Use the $\sqrt[3]{\quad}$ button the work out these.

6. $\sqrt[3]{64} = 4$
7. $\sqrt[3]{125} = 5$
8. $\sqrt[3]{1000} = 10$

9. Estimate $\sqrt{50} = 7$
10. Estimate $\sqrt{120} = 11$

E Puzzle

1. What is the largest number you can make using four 2's.

Use the power button.
65536, 6.7×10^{66}

2. If $3^{\triangle} + 7^{\circ} = 76$

And $\triangle \times \circ = \star$

$3 \times 2 = \star$

What is the value of \star ? 6

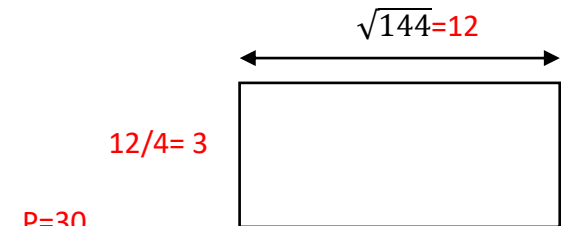
F Reasoning

1. Find a cube number which is greater than 100 but less than 200? 125,
2. Mark says that 6^3 is 18. Is Mark correct? No Explain your answer.
3. Jacob thinks that the difference between two consecutive cube numbers is always odd. Is Jacob correct. Give examples to justify your answer.

8-1 = 7 Odd, 27-8=19 Odd 64-27=37 odd
Yes. It will always be an even & an odd in the calculation so always an odd answer.

G Problem Solving

10. The length of a rectangle is four times its width. Work out its perimeter.



11. Last year my age was a square number, next year it will be a cube number. How old am I? 26, wait 10 How long must I wait until my age is both a square and cube number?

Using a calculator to solve problems using Powers and Roots

1. Use your calculator to work out

$$(2.3 + 1.8)^2 \times 1.07$$

Write down all the figures on your calculator display.

2. (a) Work out $\frac{4.6 + 3.85}{3.2^2 - 6.51}$

Write down all the numbers on your calculator display.

3. Use your calculator to work out

$$\frac{13.7 + 5.86}{2.54 \times 3.17}$$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

4. Use a calculator to work out

$$\frac{\sqrt{20.4}}{6.2 \times 0.48}$$

Write down all the figures on your calculator display.
Give your answer as a decimal.

5. (a) Use your calculator to work out

$$\frac{\sqrt{21.5}}{5.8 - 2.36}$$

Write down all the figures on your calculator display.

- (b) Write down your answer to part (a) correct to 2 decimal places.

6. (a) Use your calculator to work out the value of $\frac{45.6 \times 123}{0.34^2 - 0.28^2}$

Write down all the figures on your calculator display.

- (b) Write your answer to part (a) correct to 3 significant figures.

EXAM QUESTIONS

7. (a) Use your calculator to work out $\frac{\sqrt{2.5^2 + 3.75}}{3.9 - 1.7}$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

- (b) Write your answer to part (a) correct to 2 decimal places.

8. (a) Use your calculator to work out $\frac{38.5 \times 14.2}{18.4 - 5.9}$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

- (b) Write your answer to part (a) correct to 1 significant figure.

9. Use your calculator to work out the value of $\frac{6.27 \times 4.52}{4.81 + 9.63}$

- (a) Write down all the figures on your calculator display.

- (b) Write your answer to part (a) to an appropriate degree of accuracy.

10. Use your calculator to work out the value of $\frac{8.95 + \sqrt{7.84}}{2.03 \times 1.49}$

- (a) Write down all the figures on your calculator display.

- (b) Write down your answer to part (a) correct to 3 significant figures.

11. (a) Use your calculator to work out $\frac{\sqrt{19.2 + 2.6^2}}{2.7 \times 1.5}$

Write down all the figures on your calculator display.

- (b) Write your answer to part (a) correct to 3 significant figures.

Using a calculator to solve problems using Powers and Roots

1. Use your calculator to work out

$$(2.3 + 1.8)^2 \times 1.07$$

Write down all the figures on your calculator display.

17.9867

2. (a) Work out $\frac{4.6 + 3.85}{3.2^2 - 6.51}$

Write down all the numbers on your calculator display.

2.26541555

3. Use your calculator to work out

$$\frac{13.7 + 5.86}{2.54 \times 3.17}$$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

2.429270474

4. Use a calculator to work out

$$\frac{\sqrt{20.4}}{6.2 \times 0.48}$$

Write down all the figures on your calculator display.
Give your answer as a decimal.

1.5176868

5. (a) Use your calculator to work out

$$\frac{\sqrt{21.5}}{5.8 - 2.36}$$

Write down all the figures on your calculator display.

1.347909665

- (b) Write down your answer to part (a) correct to 2 decimal places.

1.35

6. (a) Use your calculator to work out the value of $\frac{45.6 \times 123}{0.34^2 - 0.28^2}$

Write down all the figures on your calculator display.

150774.1935

- (b) Write your answer to part (a) correct to 3 significant figures.

151000

7. (a) Use your calculator to work out $\frac{\sqrt{2.5^2 + 3.75}}{3.9 - 1.7}$

Write down all the figures on your calculator display.
You must give your answer as a decimal.

1.437398936

- (b) Write your answer to part (a) correct to 2 decimal places.

1.44

8. (a) Use your calculator to work out $\frac{38.5 \times 14.2}{18.4 - 5.9}$.

Write down all the figures on your calculator display.
You must give your answer as a decimal.

43.736

- (b) Write your answer to part (a) correct to 1 significant figure.

40

9. Use your calculator to work out the value of $\frac{6.27 \times 4.52}{4.81 + 9.63}$

- (a) Write down all the figures on your calculator display.

1.962631579

- (b) Write your answer to part (a) to an appropriate degree of accuracy.

1.96 2dp

10. Use your calculator to work out the value of $\frac{8.95 + \sqrt{7.84}}{2.03 \times 1.49}$

- (a) Write down all the figures on your calculator display.

3.884682778

- (b) Write down your answer to part (a) correct to 3 significant figures.

3.88

11. (a) Use your calculator to work out $\frac{\sqrt{19.2 + 2.6^2}}{2.7 \times 1.5}$

Write down all the figures on your calculator display.

1.258048316

- (b) Write your answer to part (a) correct to 3 significant figures.

1.26