

TEACHER'S NAME: _____

NAME: _____

CLASS: _____

3.1 SQUARES AND SQUARE ROOTS

Notes

- The square of a number is the product of the number multiplied by itself.
Example 2^2 is 2×2 .
- The square of any number is always positive
- A perfect square is a non -zero whole number produced by multiplying a number by itself.
- The square root of $a^2 = \sqrt{a \times a} = a$

A Determine whether each of the following is a perfect square or not.

Choose your answer.

i) 121 YES NO	ii) 196 YES NO
iii) 90 YES NO	iv) 225 YES NO

B Fill in the blanks.

a) $11^2 = 121$ $\sqrt{121} = \sqrt{\square \times \square}$ $= \square$	b) $(-30)^2 = 900$ $\sqrt{\square} = \sqrt{(-30) \times (-30)}$ $= \square$
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c) $49 = 7 \times 7$ $\sqrt{\boxed{}} = \sqrt{7 \times 7}$ $= \boxed{}$	d) $\sqrt{225}$ $= \sqrt{\boxed{} \times \boxed{}}$ $= \boxed{}$
e) $\sqrt{100}$ $= \sqrt{\boxed{} \times \boxed{}}$ $= \boxed{}$	f) $\sqrt{0.16}$ $= \sqrt{\boxed{} \times \boxed{}}$ $= \boxed{}$

C Match the answers below.

$(-0.6)^2$	2.63
2.5^2	0.16
23.4^2	$\frac{25}{4}$
$\left(\frac{3}{4}\right)^2$	10
$\left(-\frac{9}{23}\right)^2$	0.36
$\sqrt{0.16}$	547.56
$\sqrt{\frac{18}{32}}$	0.4
$\sqrt{6\frac{10}{11}}$	$\frac{9}{16}$
$\sqrt{100}$	$\frac{3}{4}$
$\sqrt{0.025}$	$\frac{81}{529}$

D Solve.

- i) The diagram on the side shows a chessboard. Calculate the area, in cm^2 of the chessboard.



= cm^2

- ii) The area of a rectangular piece of paper is 702.25 cm^2 . How many equal squares of length 5 cm can be cut out of the paper?

= squares

3.2 CUBES AND CUBE ROOTS

Notes

- The square of a number is a number is that the number is multiplied by itself twice.
- Example 2^3 is $2 \times 2 \times 2$
- The square root of $a^3 = \sqrt[3]{a \times a \times a} = a$

E Fill in the blanks

a)

$$\boxed{} \times \boxed{} \times \boxed{}$$

$$= (-11)^3$$

$$= -1\,331$$

b)

$$\boxed{} \times \boxed{} \times \boxed{}$$

$$= 6^3$$

$$= 216$$

c)

$$(-0.5) \times (-0.5) \times (-0.5)$$

$$= \boxed{}^3$$

$$= -0.125$$

d)

$$\boxed{} \times \boxed{} \times \boxed{}$$

$$= 16.8^3$$

$$= 4\,741.632$$

F Match the correct values of the cube and the cube root below.

$$(-3)^3$$

$$(0.4)^3$$

$$\left(\frac{2}{5}\right)^3$$

$$\left(2\frac{3}{4}\right)^3$$

$$32^3$$

$$\sqrt[3]{2\frac{10}{27}}$$

$$\sqrt[3]{0.05}$$

$$\sqrt[3]{100}$$

$$\sqrt[3]{-\frac{5}{16}}$$

$$\sqrt[3]{824}$$

$$\frac{8}{125}$$

$$4.64$$

$$9.38$$

$$-27$$

$$20\frac{51}{64}$$

$$0.064$$

$$-0.68$$

$$32768$$

$$\frac{4}{3}$$

$$0.37$$

G Solve.

a Find the value without using a calculator.

i) $\sqrt{3} \times \sqrt{48}$

ii)

$$\sqrt{3 \times 48}$$

$$\sqrt{\quad}$$

$$= \quad$$

iii) $\sqrt{2.25}$

$$\sqrt{\quad \times \quad}$$

$$= \quad$$

iv) $\sqrt{4\frac{1}{2}} \times \sqrt{\frac{1}{2}}$

$$\sqrt{\frac{9}{2} \times \frac{1}{2}}$$

$$\sqrt{\quad}$$

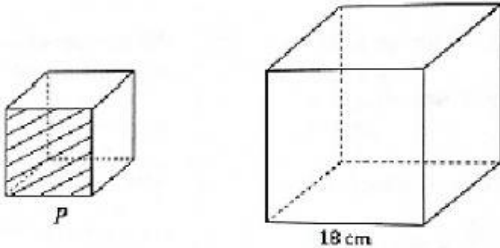
$$\sqrt{\quad \times \quad}$$

$$= \quad$$

b

Find the value of $\sqrt[3]{343} \times 16^{\frac{3}{2}}$

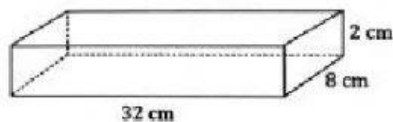
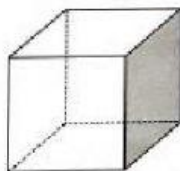
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c	A goat pen belonging to Pak Ismail is rectangular in shape with an area of 289 m^2. Pak Ismail wants to fence the whole cage. Calculate the length, in m, of the fence required by Pak Ismail. = m
d	i) Find the value of $\sqrt{7} \times \sqrt{28}$. = ii) Given $m = 37^3 \times 27$. Find the value of $\sqrt[3]{m}$ =
e	The diagram below shows two cubes of different sizes.  Given that the perimeter of the shaded area of cube P is 12 cm. Calculate the number of cubes P needed to fill cube Q. =
f	The volume of a cube is 343 cm^3. Calculate the total surface area, in cm^2, of the cube. =

- g A cube-shaped container is filled with orange juice until full. The side length of the container is 9 cm. Calculate the volume, in cm^3 , of the orange juice.

= cm^3

- h The diagram below shows a cube and a cuboid.



Given that the volume of a cuboid is equal to the volume of a cube. Calculate

- i) are, in cm^2 , of the shaded region.

= cm^2

- ii) perimeter, in cm of the shaded region.

= cm