

## Curriculum Outcome

(N5) Determine the square root of positive rational numbers that are perfect squares.

(N6) Determine an approximate square root of positive rational numbers that are non-perfect squares.

(SS2) Determine the surface area of composite 3-D objects to solve problems

(N4) \*\*Explain and apply the order of operations, including exponents, with and without technology.\*\*

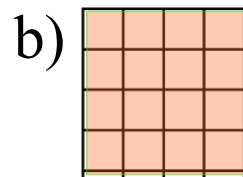
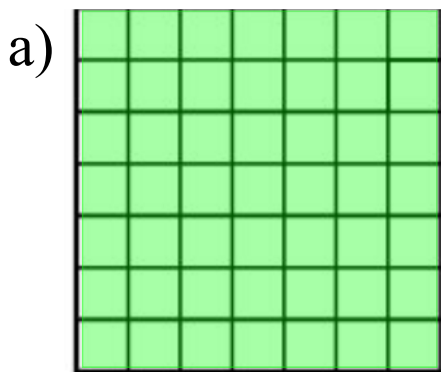


WARM UP

Without Calculators



- i) Determine the Area of the Shaded Squares
- ii) Determine the perimeter

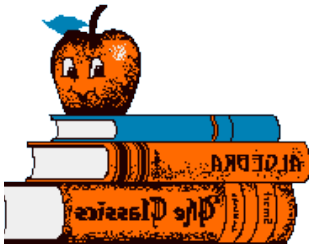


Find the square root of the following:

a)  $\frac{1}{144}$

b)  $\frac{121}{81}$

c) 36

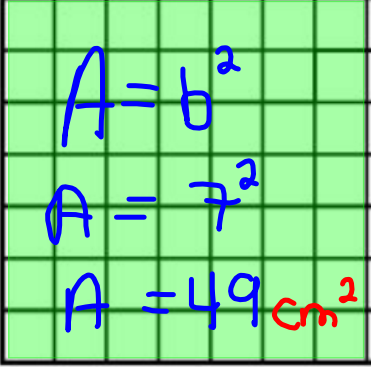


## WARM UP

## Without Calculators

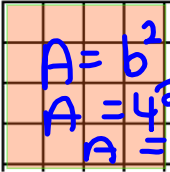


- i) Determine the Area of the Shaded Squares
- ii) Determine the perimeter

a) 

$$P = 7 + 7 + 7 + 7$$

$$P = 28 \text{ cm}$$

b) 

$$P = 4 + 4 + 4 + 4$$

$$P = 16 \text{ cm}$$

find the square root of the following:

a)  $\sqrt{\frac{1}{144}} = \frac{1}{12}$

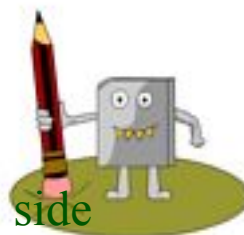
b)  $\sqrt{\frac{121}{81}}$

$$= \frac{11}{9}$$

c)  $\sqrt{36}$

$$= 6$$

You Try!!!!



For each area of a square find the length of its side

$$1) \sqrt{\frac{16}{100}}$$

$$\frac{4}{10}$$

$$2) \sqrt{\frac{9}{100}}$$

$$\frac{3}{10}$$

$$3) \sqrt{\frac{400}{100}}$$

$$\frac{20}{10}$$

$$4) \sqrt{\frac{256}{100}}$$

$$\frac{16}{10}$$

If the side length is 9  
what is the area ?



$$A = b^2$$

$$A = 9^2$$

$$A = 81$$

If the area of a square is  $16\text{cm}^2$ , what  
is the side length?



$$A = b^2$$

$$\sqrt{16} = \sqrt{b^2}$$

$$4 = b$$

## To Determine if a Fraction is a Perfect Square

**BOTH Numerator and Denominator MUST be Perfect Square Numbers**

\*\*\*Simplify fractions first\*\*\*

$$\frac{18}{32} \div 2 = \sqrt{\frac{9}{16}} = \frac{3}{4}$$

So  $\frac{18}{32}$  is a P.S

Is each fraction a perfect square? Explain

b)  $\sqrt{\frac{4}{3}} = \frac{2}{?}$

$\frac{4}{3}$  is Not P.S

c)  $\frac{300}{108} \div 3 = \sqrt{\frac{100}{36}}$

$$= \frac{10}{6}$$

$\frac{300}{108}$  is P.S

## Identifying Decimals that are Perfect Squares

1.44

### Method 1

Write the decimal as a fraction

$$\sqrt{\frac{144}{100}} = \frac{12}{10}$$

Simplify the fraction. Divide the numerator and denominator by 4.

$$1.44 = \frac{36}{25}$$

$$= \frac{6}{5} \times \frac{6}{5}$$

THUS 1.44 is a perfect square

### Method 2

Use a Calculator.

Use the square root button  $\sqrt{\quad}$

$$\sqrt{1.44} = 1.2$$

Since the square root is a terminating decimal then 1.44 is a perfect square.

Without a calculator

Determine if the decimal is a perfect square?

$$\begin{aligned} & \underline{1.69} \\ & \sqrt{\frac{169}{100}} \\ & = \frac{13}{10} \end{aligned}$$

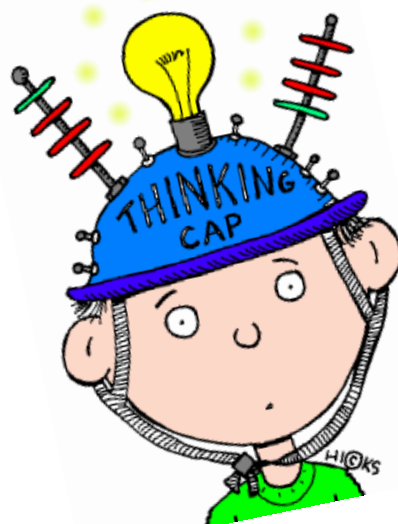
$$\begin{aligned} & 0.016 \\ & \sqrt{\frac{16}{1000}} \\ & = \frac{4}{?} \end{aligned}$$



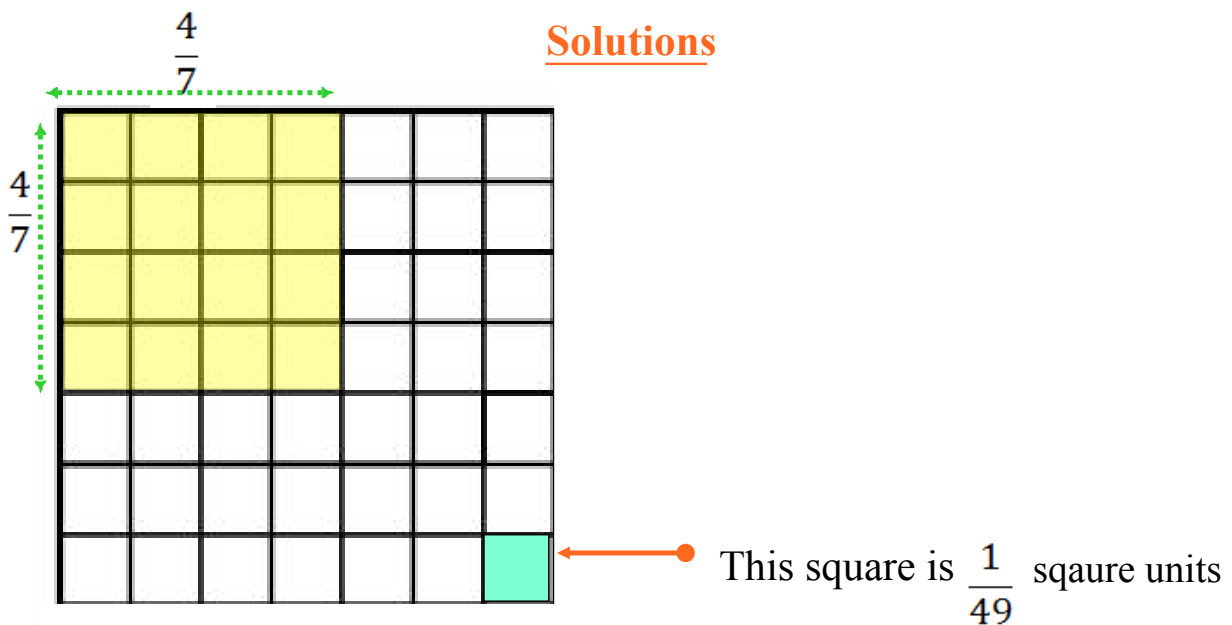
Calculate the number whose square root is  $\frac{4}{7}$

$$(\sqrt{x})^2 = \left(\frac{4}{7}\right)^2$$

$$x = \frac{16}{49}$$



Basically what is the area????



$$\left(\frac{4}{7}\right)^2 = \frac{4}{7} \times \frac{4}{7}$$

$$= \frac{16}{49}$$

So  $\frac{4}{7}$  is the square root of  $\frac{16}{49}$

You Try!!!



Calculate the number whose square root is .

$$1) \frac{7}{11}$$

$$\sqrt{x} = \frac{7}{11}$$

$$x = \frac{49}{121}$$

$$2) \frac{3}{5}$$

$$\sqrt{x} = \frac{3}{5}$$

$$x = \frac{9}{25}$$

$$3) 1.5$$

$$\sqrt{x} = \frac{15}{10}$$

$$x = \frac{225}{100}$$

# Class/ Homework

Page 11 & 12

# 3 (a, b, c)

#5 (without calculator)

# 7 (without calculator)

Thursday

8 (a, c, d, f, g, i, j , l) without a calculator

8(b,e,h,k) with calculator

9

10(a, b)

14

16