Unit 1 Study Guide

Skill	Description	Example
Identify fractions that are perfect squares and find their square roots.	A fraction is a perfect square if it can be written as the product of 2 equal fractions. The square root is one of the 2 equal fractions.	$\frac{16}{25} = \frac{4}{5} \times \frac{4}{5}$ $\sqrt{\frac{16}{25}} = \frac{4}{5}$
Identify decimals that are perfect squares.	Use a calculator. The square root is a repeating or terminating decimal.	$\sqrt{1.69} = 1.3$
Estimate square roots of numbers that are not perfect squares.	Find perfect squares close to the number. Use the squares and square roots number lines.	$\sqrt{\frac{3}{10}} \doteq \sqrt{\frac{4}{9}} \doteq \frac{2}{3}$ 3 is close to 4; 10 is close to 9. **Squares** 4 7.5 9 2 $\sqrt{7.5}$ 3 **Square roots**
Calculate the surface area of a composite object.	Add the areas of each of the 6 views.	 Front The surface area is 14 square units.
	Or Add surface areas of the parts, then subtract for the overlap.	 SA = 125.66 cm^2 Area = 12.57 cm^2 SA = 216 cm^2 $SA = 216 + 125.66 - 2(12.57)$ $\quad\ = 316.52$ The surface area is about 317 cm^2.

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Unit 1 Review

1.1 **1.** Calculate the number whose square root is:

a) $\frac{3}{7}$

___ × ___ = ___

$\frac{3}{7}$ is a square root of ___.

b) 9.9

9.9 × 9.9 = _____

9.9 is a square root of _____.

2. Complete the table.

Fraction	Is numerator a perfect square?	Is denominator a perfect square?	Is fraction a perfect square?
a) $\frac{25}{81}$	_____	_____	____
b) $\frac{7}{4}$	_____	_____	____
c) $\frac{49}{65}$	_____	_____	____

3. Complete the table.

Decimal	Value of Square Root	Type of Decimal	Is decimal a perfect square?
a) 5.29	_____	_____	____
b) 156.25	_____	_____	____
c) 6.4	_____	_____	____

4. Find the square root of each number.

a) $\sqrt{\frac{25}{81}}$ = ___

b) $\sqrt{59.29}$ = ___

1.2 **5.** Estimate $\sqrt{14.5}$. Explain your estimate.

14.5 is between ____ and ____.

So, $\sqrt{14.5}$ is between $\sqrt{}$ and $\sqrt{}$. That is, $\sqrt{14.5}$ is between ____ and ____.

Since 14.5 is closer to ____ than ____, $\sqrt{14.5}$ is closer to ____ than ____.

So, $\sqrt{14.5}$ is between ____ and ____, and closer to ____.

6. Estimate each square root. Explain.

a) $\sqrt{\dfrac{2}{13}}$

2 is close to ___; 13 is close to ___.

So, $\sqrt{\dfrac{2}{13}} \doteq \sqrt{\dfrac{\underline{}}{\underline{}}}$

$\doteq \dfrac{\underline{}}{\underline{}}$

b) $\sqrt{\dfrac{11}{70}}$

11 is close to ___; 70 is close to ___.

So, $\sqrt{\dfrac{11}{70}} \doteq \sqrt{\dfrac{\underline{}}{\underline{}}}$

$\doteq \dfrac{\underline{}}{\underline{}}$

7. Identify a decimal that has a square root between the two given numbers. Check the answer.

a) 2 and 3

$2^2 =$ ____ and $3^2 =$ ____

So, any number between ____ and ____ has a square root between 2 and 3.

Choose ____.

Check: $\sqrt{\underline{}} \doteq$ ____

The decimal ____ is one possible answer.

b) 6.5 and 7.5

_____ = _____ and _____ = _____

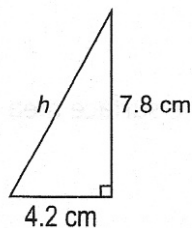So, any number between _____ and _____ has a square root between 6.5 and 7.5.

Choose _____.

Check: $\sqrt{\underline{}} \doteq$ _____.

The decimal _____ is one possible answer.

8. Find the length of the hypotenuse of each right triangle.

a)

h / 7.8 cm

4.2 cm

$h^2 =$ _____ + _____
$h^2 =$ _____ + _____
$h^2 =$ _____
$h = \sqrt{\underline{}}$
$h \doteq$ _____

The length of the hypotenuse is about _____ cm.

b)

h / 7.1 cm

10.5 cm

$h^2 =$ _____ + _____
$h^2 =$ _____ + _____
$h^2 =$ _____
$h = \sqrt{\underline{}}$
$h \doteq$ _____

_____
_____

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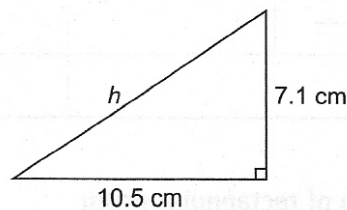
1.3 **9.** This object is made from 1-cm cubes. Find its surface area.
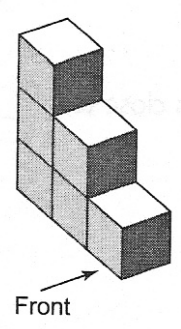
Matching Views	Diagram	Corresponding Area (cm²)
_____ _____		_____
_____ _____		_____
_____ _____		_____
Total		_____

The surface area is _____ cm².

10. Calculate the surface area of this composite object.

50 cm
40 cm
50 cm
20 cm
10 cm
50 cm
Front
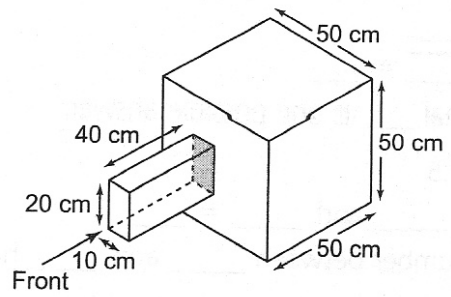
Surface area of cube

Matching Faces	Diagram	Corresponding Area (cm²)
_____ / _____		
_____ / _____		6(___ × ___) = _____
_____ / _____		
Total		_____

The surface area is _____ cm².

Surface area of rectangular prism

Matching Faces	Diagram	Corresponding Area (cm²)
_____ / _____		_____
_____ / _____		_____
_____ / _____		_____
Total		_____

The surface area is _____ cm².

Area of overlap

Diagram	Corresponding Area (cm²)
	___ × ___ = ___

The area of overlap is ____ cm².

SA composite object = _____ + _____ − _____

= _____ + _____ − _____

= _____

The surface area of the composite object is _____ cm².

1.4 **11.** Find the surface area of this composite object.
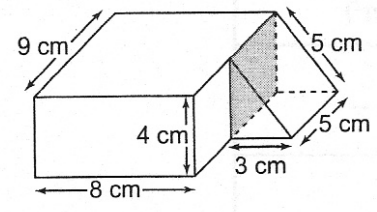
9 cm   5 cm
4 cm   5 cm
3 cm
8 cm

Surface area of rectangular prism

Matching Faces	Diagram	Corresponding Area (cm²)
_____ _____		_____
_____ _____		_____
_____ _____		_____
Total		_____

The surface area is _____ cm².

Surface area of triangular prism

Matching Faces	Diagram	Corresponding Area (cm²)
Triangular		_____
		_____
Rectangular		_____
		_____
Total		____

The surface area is ____ cm².

Area of overlap

Diagram	Corresponding Area (cm²)
	_____

The area of overlap is ____ cm².

SA = _____ + _____ − _____

= ___ + ___ − ___

= ___

The surface area of the composite object is ____ cm².

12. Find the surface area of this composite object.
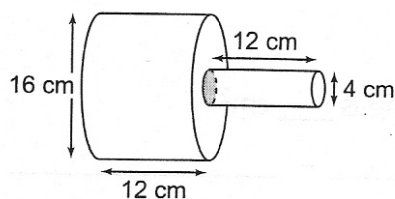
The larger cylinder has diameter ____ cm, so its radius is ___ cm.
The smaller cylinder has diameter ___ cm, so its radius is ___ cm.

Surface area of smaller cylinder

Matching Faces	Diagram	Corresponding Area (cm²)
Top Bottom		_ × _ × _ ≐ _____
Curved surface		_ × _ × _ × _ ≐ _____
Total		_____

The surface area is about _____ cm².

Surface area of larger cylinder

Matching Faces	Diagram	Corresponding Area (cm²)
Top Bottom		_ × _ × _ ≐ _____
Curved surface		_ × _ × _ × _ ≐ _____
Total		_____

The surface area is about _____ cm².

Area of overlap

Diagram	Corresponding Area (cm²)
	_ × _ ≐ _____

The area of overlap is about _____ cm².

Surface area of the composite object ≐ _____ + _____ − _____

≐ _____

The surface area is about _____ cm².