

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.	$\sqrt{3} \div \sqrt{4} \div \frac{2}{3} \quad 3 \text{ is close to } 4;$ $\sqrt{10} \div \sqrt{9} \div 3 \quad 10 \text{ is close to } 9.$ <p style="text-align: center;">Squares</p> <p style="text-align: center;">Square roots</p>
Calculate the surface area of a composite object.	Add the areas of each of the 6 views. Or Add surface areas of the parts, then subtract for the overlap.	<p>Front</p> <p>The surface area is 14 square units.</p> <p>SA = 125.66 cm² Area = 12.57 cm² SA = 216 cm²</p> <p>SA = 216 - 125.66 - 2(12.57) = 316.52</p> <p>The surface area is about 317 cm².</p>

Unit 1 Review

1.1 1. Calculate the number whose square root is:

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

$\frac{3}{7} \times \frac{3}{7} = \frac{\quad}{\quad}$

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

b) 9.9

$9.9 \times 9.9 = \frac{\quad}{\quad}$

9.9 is a square root of $\frac{\quad}{\quad}$.

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) $\sqrt{\frac{25}{81}} = \frac{\quad}{\quad}$

b) $\sqrt{59.29} = \frac{\quad}{\quad}$

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

14.5 is between $\frac{\quad}{\quad}$ and $\frac{\quad}{\quad}$.

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

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

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

6. Estimate each square root. Explain.

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

2 is close to ____; 13 is close to ____.

So, $\sqrt{\frac{2}{13}} \approx \sqrt{\frac{\underline{\quad}}{\underline{\quad}}}$
 $\approx \frac{\underline{\quad}}{\underline{\quad}}$

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

11 is close to ____; 70 is close to ____.

So, $\sqrt{\frac{11}{70}} \approx \sqrt{\frac{\underline{\quad}}{\underline{\quad}}}$
 $\approx \frac{\underline{\quad}}{\underline{\quad}}$

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

Check the answer.

a) 2 and 3

$2^2 = \underline{\quad}$ and $3^2 = \underline{\quad}$

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

Choose ____.

Check: $\sqrt{\underline{\quad}} \approx \underline{\quad}$

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.

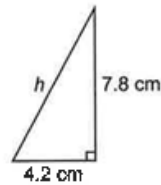
Choose ____.

Check: $\sqrt{\underline{\quad}} \approx \underline{\quad}$

The decimal ____ is one possible answer.

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

a)



$h^2 = \underline{\quad} + \underline{\quad}$

$h^2 = \underline{\quad} + \underline{\quad}$

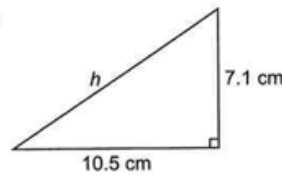
$h^2 = \underline{\quad}$

$h = \sqrt{\underline{\quad}}$

$h \approx \underline{\quad}$

The length of the hypotenuse is about ____ cm.

b)



$h^2 = \underline{\quad} + \underline{\quad}$

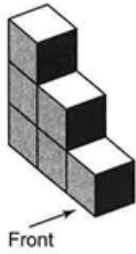
$h^2 = \underline{\quad} + \underline{\quad}$

$h^2 = \underline{\quad}$

$h = \sqrt{\underline{\quad}}$

$h \approx \underline{\quad}$

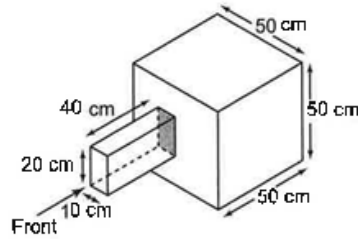
1.3 9. This object is made from 1-cm cubes. Find its surface area.



Matching Views	Diagram	Corresponding Area (cm ²)
_____ _____		_____
_____ _____		_____
_____ _____		_____
Total		_____

The surface area is ____ cm².

10. Calculate the surface area of this composite object.



Surface area of cube

Matching Faces	Diagram	Corresponding Area (cm ²)
____ / ____ ____ / ____ ____ / ____		6(____ × ____) = _____
Total		_____

The surface area is ____ cm².

Surface area of rectangular prism

Matching Faces	Diagram	Corresponding Area (cm ²)
____ / ____		_____
____ / ____		_____
____ / ____		_____
Total		_____

The surface area is ____ cm².

Area of overlap

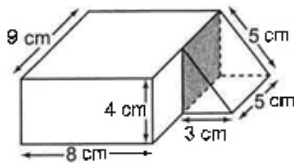
Diagram	Corresponding Area (cm ²)
	___ × ___ = ___

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.



Surface area of rectangular prism

Matching Faces	Diagram	Corresponding Area (cm ²)
_____ _____		_____
_____ _____		_____
_____ _____		_____
Total		_____

The surface area is ___ cm².

Surface area of triangular prism

Matching Faces	Diagram	Corresponding Area (cm ²)
Triangular		_____ _____
Rectangular		_____ _____
		_____ _____
Total		_____

The surface area is ___ cm².

Area of overlap

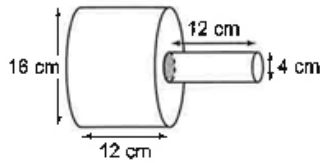
Diagram	Corresponding Area (cm ²)

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 (cm ²)
Top Bottom		__ × __ × __ ÷ ____
Curved surface		__ × __ × __ × __ ÷ ____
Total		_____

The surface area is about _____ cm².

Surface area of larger cylinder

Matching Faces	Diagram	Corresponding Area (cm ²)
Top Bottom		__ × __ × __ ÷ ____
Curved surface		__ × __ × __ × __ ÷ ____
Total		_____

The surface area is about _____ cm².

Area of overlap

Diagram	Corresponding Area (cm ²)
	__ × __ ÷ ____

The area of overlap is about _____ cm².

Surface area of the composite object ÷ _____ + _____ ÷ _____
 ÷ _____

The surface area is about _____ cm².