Name _____ Date _____

Master 1.16

Extra Practice 1

Lesson 1.1: Square Roots of Perfect Squares

1. Determine the value of the square root . (WITHOUT A CALCULATOR)

a) $\sqrt{\frac{1}{9}}$ **b)** $\sqrt{0.16}$

2. Which numbers below are perfect squares? How do you know? (WITHOUT A CALCULATOR

a) $\frac{25}{121}$ **b)** 2.89 **c)** $\frac{2}{50}$ **d)** 0.004

3. Calculate the number whose square root is: (WITHOUT A CALCULATOR

a) $\frac{5}{7}$ **b)** 1.6 **c)** 0.92 **d)** $\frac{10}{9}$

4. Determine the value of each square root. (WITHOUT A CALCULATOR

a) $\sqrt{\frac{225}{49}}$ **b)** $\sqrt{\frac{9}{25}}$ **c)** $\sqrt{\frac{400}{324}}$ **d)** $\sqrt{\frac{8}{98}}$

5. Determine the value of each square root. (Use your calculator)

a) $\sqrt{6.76}$ **b)** $\sqrt{327.61}$ **c)** $\sqrt{0.0025}$ **d)** $\sqrt{0.0225}$

6. The area of a square garden is 12.25 m^2. (Use your calculator)

a) Determine the perimeter of the garden.
b) The owner decides to put a gravel pathway around the garden. This reduces the area of the garden by 4.96 m^2. What is the new side length of the garden?

Name _____ Date _____

Master 1.17

Extra Practice 2

Lesson 1.2: Square Roots of Non-Perfect Squares

1. Which numbers below are perfect squares? How do you know? (WITHOUT A CALCULATOR)

a) $\sqrt{\frac{16}{53}}$ **b)** $\sqrt{\frac{1}{25}}$ **c)** $\sqrt{0.009}$ **d)** $\sqrt{10.24}$

2. State the benchmark(s) you could use to approximate each square root.

a) $\sqrt{29.4}$ **b)** $\sqrt{0.41}$

3. Use benchmarks to approximate each square root to the nearest tenth.

a) $\sqrt{11.6}$ **b)** $\sqrt{0.39}$ **c)** $\sqrt{\frac{21}{2}}$ **d)** $\sqrt{\frac{11}{52}}$

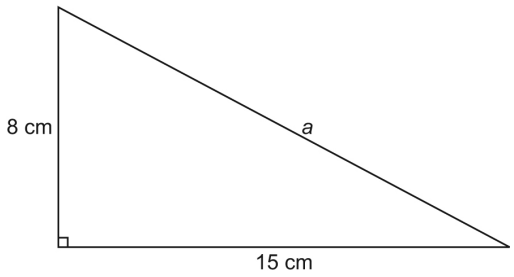
4. Suppose the $\sqrt{\ }$ key on your calculator is broken. Explain how you could use your calculator to estimate $\sqrt{58.6}$ to the nearest tenth.

5. Use a calculator to approximate each square root to the nearest tenth.

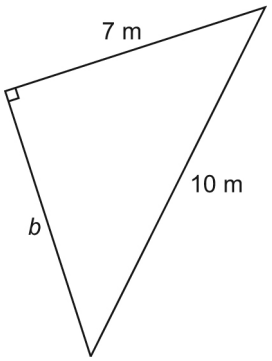
a) $\sqrt{14.29}$ **b)** $\sqrt{\frac{15}{8}}$ **c)** $\sqrt{\frac{2}{19}}$ **d)** $\sqrt{0.7}$

6. In each triangle, determine the unknown length to the nearest tenth of a unit where necessary.

a)



b)



Name _____ Date _____

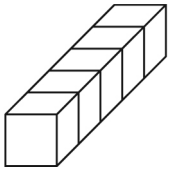
Master 1.18

Extra Practice 3

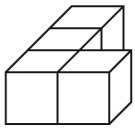
Lesson 1.3: Surface Areas of Objects Made from Right Rectangular Prisms

1. Each cube has edge length 2 unit.
Determine the surface area of each object.

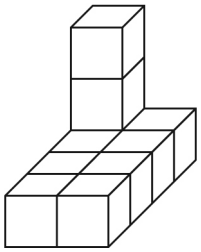
a)



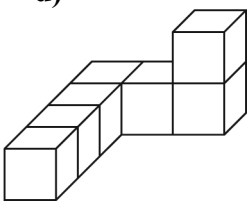
b)



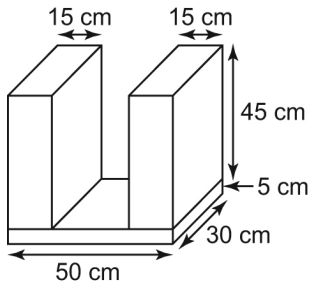
c)



d)

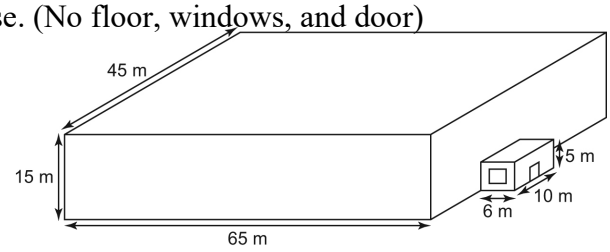


2. Determine the surface area of this composite object.



3. The local curling rink is shown in the diagram at the right.

a) Determine the surface area of the warehouse. (No floor, windows, and door)



b) The door is 1 m by 2 m
and the window is 4 m by 2 m. Determine
the surface area to be painted.

c) A can of paint covers 300 m^2 and
costs \$45. Determine the cost of the paint needed.

Name _____ Date _____

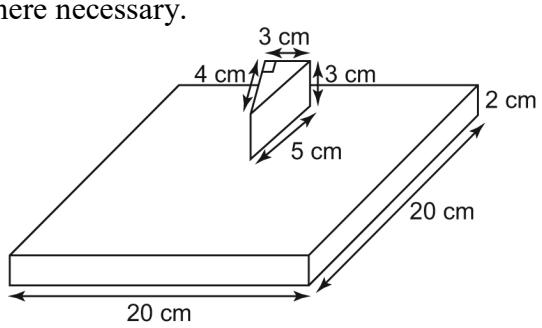
Master 1.19

Extra Practice 4

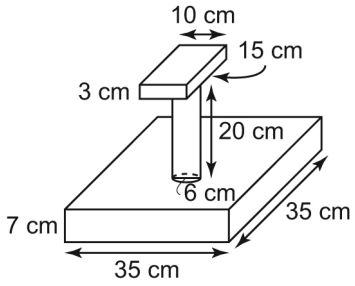
Lesson 1.4: Surface Areas of Other Composite Objects

1. Determine the surface area of each composite object to the nearest tenth of a square centimetre where necessary.

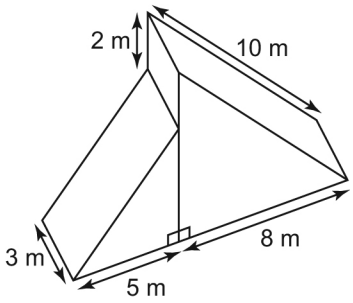
a)



b)



2. Determine the surface area of the composite object at the right to the nearest square metre.

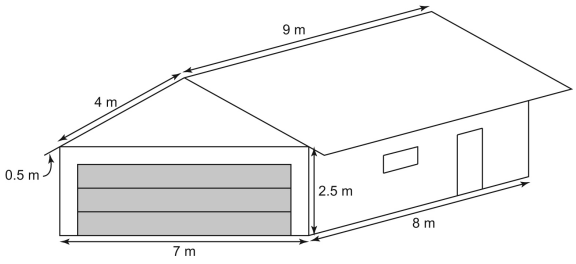


3. Suppose the diagram in question 2 is part of a structure at a snowboarding park.

a) What changes, if any, would you make in calculating the surface area of this object?

b) The structure is to be covered on the top sections (where a boarder would be riding) with a special "carpet for summer sliding." Calculate the area of carpet that would be needed.

4. Jeanne is helping her dad with his stucco business for the summer. Since Jeanne has studied surface area in school, she does some estimates for her dad's business. For the garage at the right, they plan to stucco the walls. They will not stucco the roof, car door, side door, or window. The car door measures 5 m by 2.3 m, the side door measures 2.1 m by 0.9 m, and the window measures 1 m by 0.7 m. Determine the surface area to be covered with stucco to the nearest square metre.



Name _____ Date _____

Master 1.20

Extra Practice Sample Answers

Extra Practice 1 – Master 1.16

Lesson 1.1

1. **a)** $\frac{1}{3}$ **b)** 0.4

2. **a)** Yes, both 25 and 121 are perfect squares.

b) Yes, $\sqrt{2.89} = \sqrt{\frac{289}{100}} = \frac{17}{10}$

c) Yes, $\frac{2}{50} = \frac{4}{100}$ and $\sqrt{\frac{4}{100}} = \frac{2}{10} = 0.2$

d) No, 0.004 = $\frac{4}{1000}$ and 1000 is not a perfect square.

3. **a)** $\frac{25}{49}$ **b)** 2.56

c) 0.8464 **d)** $\frac{100}{81}$

4. **a)** $\frac{15}{7}$ **b)** $\frac{3}{5}$

c) $\frac{20}{18}$, or $\frac{10}{9}$

d) $\sqrt{\frac{8}{98}} = \sqrt{\frac{4}{49}} = \frac{2}{7}$

5. **a)** 2.6 **b)** 18.1
c) 0.05 **d)** 0.15

6. **a)** Side length in metres = $\sqrt{12.25} = 3.5$
So, perimeter of garden is 4×3.5 m, or 14 m.

b) New area of garden: 12.25 m^2 – 4.96 m^2 = 7.29 m^2
New side length in metres:
$\sqrt{7.29}$ = 2.7

Extra Practice 2 – Master 1.17

Lesson 1.2

1. **a)** No, 53 is not a perfect square.

b) Yes, both 1 and 25 are perfect squares.

c) No, $\sqrt{0.009} = \sqrt{\frac{9}{1000}}$, and 1000 is not a perfect square.

d) Yes, $\sqrt{10.24} = \sqrt{\frac{1024}{100}}$ and both 1024 and 100 are perfect squares.

2. **a)** $\sqrt{25} = 5$ and $\sqrt{36} = 6$

b) $\sqrt{0.36} = 0.6$ and $\sqrt{0.49} = 0.7$

c) $\sqrt{\frac{18}{37}}$ $\sqrt{\frac{16}{36}}$

d) $\sqrt{\frac{14}{3}}$ $\sqrt{4}$

3. **a)** $\sqrt{11.6}$ is between $\sqrt{9} = 3$ and $\sqrt{16} = 4$, but closer to 3. Try 3.4: 3.4^2 = 11.56.
So, $\sqrt{11.6}$ 3.4

b) $\sqrt{0.39}$ $\sqrt{0.36} = \sqrt{\frac{36}{100}} = \frac{6}{10} = 0.6$

c) $\sqrt{\frac{21}{2}} = \sqrt{10.5}$ and $\sqrt{10.5}$ is between $\sqrt{9} = 3$ and $\sqrt{16} = 4$, but closer to 3. Try 3.2: 3.2^2 = 10.24, which is close.
So, $\sqrt{\frac{21}{2}}$ 3.2

d) $\sqrt{\frac{11}{52}}$ $\sqrt{\frac{13}{52}} = \sqrt{\frac{1}{4}}$, which is $\frac{1}{2}$.
So, $\sqrt{\frac{11}{52}}$ 0.5

4. I could use guess and test. I could use the benchmarks $\sqrt{49} = 7$ and $\sqrt{64} = 8$. Since 58.6 is a little closer to 64, try 7.7.
7.7^2 = 59.29, which is close. So, $\sqrt{58.6}$ 7.7

5. **a)** 3.8 **b)** 1.4
c) 0.3 **d)** 0.8

6. **a)** 17 cm **b)** 7.1 m

Extra Practice 3 – Master 1.18

Lesson 1.3

1. **a)** 88 $unit^2$ **b)** 72 $unit^2$
c) 144 $unit^2$ **d)** 120 $unit^2$

2. 11 900 cm^2

Name _____ Date _____

Master 1.21

Extra Practice and Activating Prior Knowledge Sample Answers

3. **a/b)** 6335 m^2
c) $950.

Extra Practice 4 – Master 1.19

Lesson 1.4

1. **a)** 996 cm^2 **b)** 4200.4 cm^2

2. 162 m^2

3. **a)** The surface area of the base, 39 m^2, would not be included. So, the surface area would now be 123 m^2.
b) Only the oblique faces of the structure would be included; 49 m^2.

4. 74 m^2