

## Chapter 4 Problems of the Week

1. A camera negative is the film in a camera that captures an image when you take a picture. Each negative measures  $24 \text{ mm} \times 36 \text{ mm}$ . From these negatives, pictures can be made in 2 sizes:

- $90 \text{ mm} \times 130 \text{ mm}$
- $100 \text{ mm} \times 150 \text{ mm}$

If you enlarge the negative, will the complete image appear on each size of picture? Explain. Show your calculations.

- $90 \text{ mm} \times 130 \text{ mm}$  picture

Use a proportion or the scale.

The image \_\_\_\_\_ fit on a  $90 \text{ mm} \times 130 \text{ mm}$  picture.  
(*can or cannot*)

- $100 \text{ mm} \times 150 \text{ mm}$  picture

The image \_\_\_\_\_ fit on a  $90 \text{ mm} \times 130 \text{ mm}$  picture.  
(*can or cannot*)

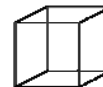


Name: \_\_\_\_\_

Date: \_\_\_\_\_

**BLM 4-1**  
(continued)

2. In the north, animals need to be able to stay warm in cold temperatures in order to survive. There is a mathematical connection between surface area and volume that is related to an animal's chance of survival. Use different sized cubes explore this situation.



a) Complete the chart.

Side Length of Cube (cm)	S.A. of Cube (cm <sup>2</sup> ) SA = 6s <sup>2</sup>	V of Cube (cm <sup>3</sup> ) V = lwh	$\frac{S.A.}{V}$
1	$6 \times 1^2$ $= 6 \times 1 \times 1$ $= \underline{\hspace{2cm}}$	$1 \times 1 \times 1$ $= \underline{\hspace{2cm}}$	<div style="display: flex; align-items: center; justify-content: center;"> <div style="border: 1px solid black; width: 40px; height: 20px; margin-right: 5px;"></div> <div style="margin-right: 5px;">=</div> <div style="border: 1px solid black; width: 40px; height: 20px; margin-right: 5px;"></div> <div style="margin-right: 5px;">=</div> <div style="border-bottom: 1px solid black; width: 40px; margin-left: 5px;"></div> </div>
2			
3			
4			

b) Use your observations to help explain why large animals find it easier to survive cold temperatures.

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