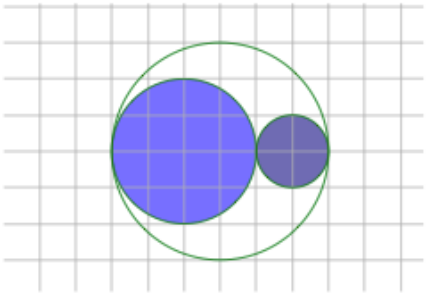
Lesson Summary

If the scale factor is represented by k, then the area of the scale drawing is k^2 times the corresponding area of the original drawing.

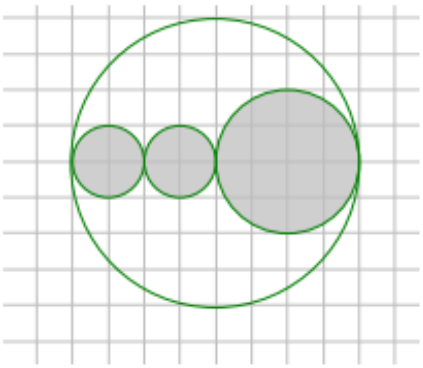
Problem Set

1. What percent of the area of the larger circle is shaded?



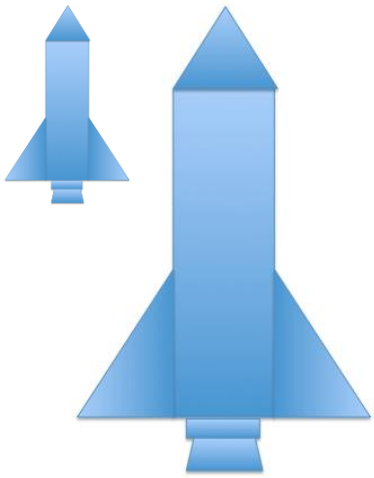
   a. Solve this problem using scale factors.
   b. Verify your work in part (a) by finding the actual areas.

2. The area of the large disk is 50.24 units^2.



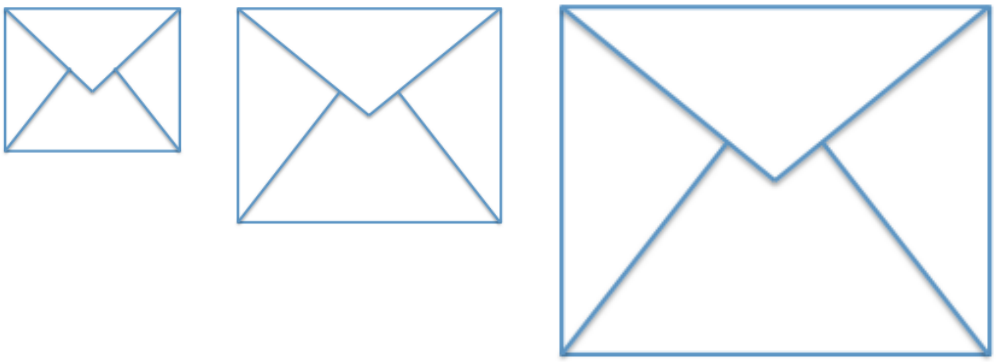
   a. Find the area of the shaded region using scale factors. Use 3.14 as an estimate for π.
   b. What percent of the large circular region is unshaded?

3. Ben cut the following rockets out of cardboard. The height from the base to the tip of the smaller rocket is 20 cm. The height from the base to the tip of the larger rocket is 120 cm. What percent of the area of the smaller rocket is the area of the larger rocket?



4. In the photo frame depicted below, three 5 inch by 5 inch squares are cut out for photographs. If these cut-out regions make up $\frac{3}{16}$ of the area of the entire photo frame, what are the dimensions of the photo frame?

5. Kelly was online shopping for envelopes for party invitations and saw these images on a website.



The website listed the dimensions of the small envelope as 6 in. by 8 in. and the medium envelope as 10 in. by $13\frac{1}{3}$ in.

a. Compare the dimensions of the small and medium envelopes. If the medium envelope is a scale drawing of the small envelope, what is the scale factor?

b. If the large envelope was created based on the dimensions of the small envelope using a scale factor of 250%, find the dimensions of the large envelope.

c. If the medium envelope was created based on the dimensions of the large envelope, what scale factor was used to create the medium envelope?

d. What percent of the area of the larger envelope is the area of the medium envelope?