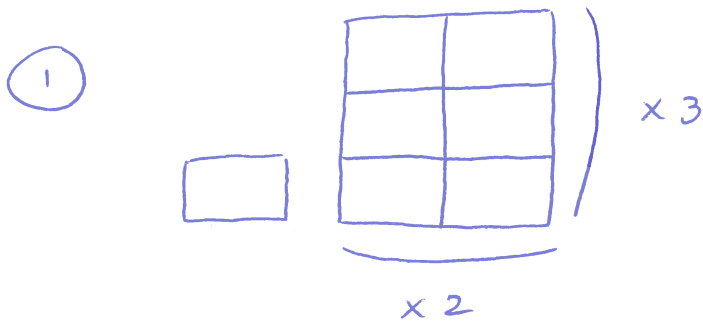


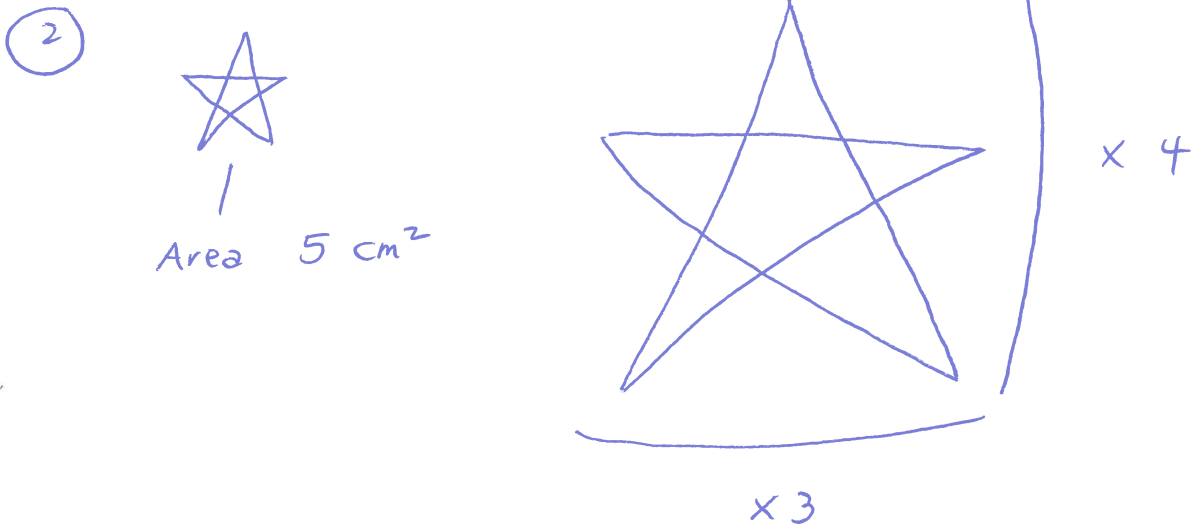
Answers / Explanations



Area has increased
by a factor of
 $2 \times 3 = 6$

Similar figures? No (Horizontal scale factor
 \neq Vertical scale factor)

Area ratio: $6:1$

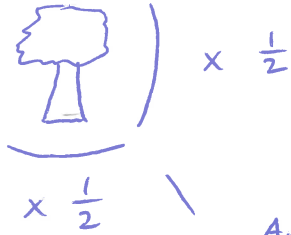


Area scale factor = $3 \times 4 = 12$

Similar figures? No (same reason as #1)

$$\text{Area of large star} = \underbrace{(5 \text{ cm}^2)}_{\text{area of small star}} \times \underbrace{12}_{\text{area scale factor}} = \boxed{60 \text{ cm}^2}$$

3



Area = 6 cm^2

Yes (on similarity) because

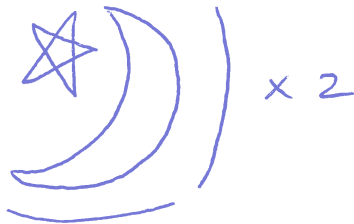
horizontal scale factor = vertical scale factor

Using the small tree as the reference point,
the scale factor is 2 so the area

scale factor is $2 \times 2 = 4$.

Area of large tree = $6 \text{ cm}^2 \times 4 = \boxed{24 \text{ cm}^2}$

4



200% enlargement
⇒ scale factor
of 2.

x 2

length ratio 2:1

area ratio $2^2:1$ or 4:1

small star has area 5 cm^2

large star area = $5 \text{ cm}^2 \times 4$

= $\boxed{20 \text{ cm}^2}$

Area of large moon = 48 cm^2

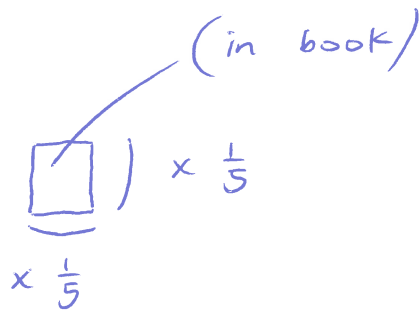
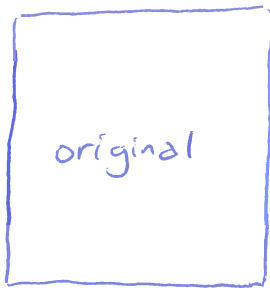
Area of small moon =

$48 \text{ cm}^2 \div 4$

= $\boxed{12 \text{ cm}^2}$

5 Mona Lisa

(I think the pictures would be similar [so w/ a $\frac{1}{5}$ scale factor vertically as well] — otherwise, the picture in the book would look absurd!)



<u>length ratio</u>	$1 : \frac{1}{5}$	or	$5 : 1$
<u>area ratio</u>	$1 : \frac{1}{25}$	or	$25 : 1$

$$\text{Area of large painting} = \underbrace{24 \text{ in}^2}_{\substack{\text{picture in} \\ \text{book}}} \times \underbrace{25}_{\substack{\text{area} \\ \text{scale} \\ \text{factor}}} = \boxed{600 \text{ in}^2}$$

SANTA PROBLEM

scale factor = 3

$$\left. \begin{array}{l} 10 \text{ in} \rightarrow \frac{1}{2} \text{ oz paint} \\ 30 \text{ in} \rightarrow ? \end{array} \right\}$$

$$\begin{aligned} \text{Surface Area} \\ \text{scale factor} &= 3^2 = 9 \Rightarrow \\ \frac{1}{2} \text{ oz} \times 9 &= \boxed{4.5 \text{ oz}} \end{aligned}$$

JACK + THE BEANSTALK

Jack $\xrightarrow{\times 4}$ Giant

(A) Jack's table top : 8 ft²

AREA

Giant's table top : $8 \times 4^2 = 128 \text{ ft}^2$

(B) Jack's plate circumference : 2 ft

LENGTH

Giant's " " : $2 \times 4 = 8 \text{ ft}$

(C) Jack's mug : 1 cup

VOLUME

Giant's mug : $1 \times 4^3 = 64 \text{ cups}$

(D) Jack weighs 100 lbs

VOLUME

Volume proportional to weight

Giant weighs $100 \times 4^3 = 6400 \text{ lbs}$