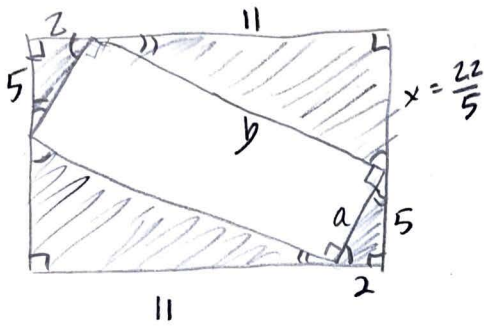


Four a Rainy Day



$$\frac{5}{2} = \frac{11}{x}$$

$$x = \frac{22}{5}$$

$$a = \sqrt{25+4} = \sqrt{29}$$

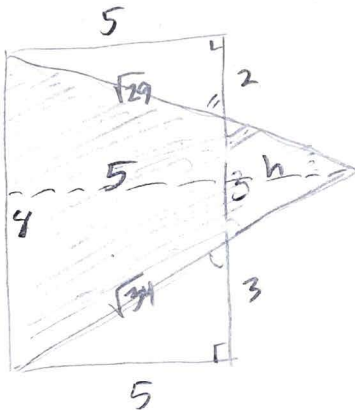
$$\frac{\sqrt{29}}{b} = \frac{5}{11} \Rightarrow b = \frac{11\sqrt{29}}{5}$$

① Grey A = $13 \times \frac{47}{5} = \frac{611}{5}$

white A = $a \cdot b = \sqrt{29} \cdot \frac{11\sqrt{29}}{5} = \frac{319}{5}$

Ratio of areas = $\frac{319}{5} \cdot \frac{5}{611} = 52.2\%$

②



$$\frac{A_s}{A_u} = \left(\frac{3}{8}\right)^2 = \frac{9}{64}$$

$$64x - 9x = \frac{55}{2}$$

$$55x = \frac{55}{2}$$

$$x = \frac{1}{2}$$

$$\therefore A_{\text{unshaded}} = 32x^2$$

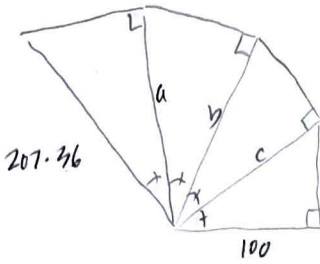
$$A_{\text{shaded}} = 5 \cdot 4 - \frac{1}{2}(3 \cdot 5) - \frac{1}{2}(2 \cdot 5)$$

$$= 40 - \frac{15}{2} - 5 = \frac{55}{2}$$

or: $\frac{h}{h+5} = \frac{3}{8}$, so $h = 3$

$$\therefore A = \frac{1}{2}(8)(8) = 32x^2$$

4



Δ 's are all similar, so scale factor from long leg to hyp is always the same. Let's call that k .

$$\text{Then } 100 \cdot k = c \cdot k = b \cdot k = a \cdot k = 207.36$$

$$\text{or } 100 \cdot k^4 = 207.36$$

$$k^4 = 2.0736$$

$$k = 1.2$$

$$c = 100 \cdot 1.2 = 120$$

$$b = 120 \cdot 1.2 = 144$$

$$a = 144 \cdot 1.2 = 172.8$$

5) smallest area = 7000

$$\text{next area} = \frac{7000}{x} = \left(\frac{100}{120}\right)^2 = \left(\frac{5}{6}\right)^2 = \frac{25}{36}$$

$$\Rightarrow x = 10,080$$

$$\text{next area} = \frac{10,080}{x} = \frac{25}{36} \Rightarrow x = 14,515.2$$

$$\text{next area} = \frac{14,515.2}{x} = \frac{25}{36} \Rightarrow x = 20,901.9$$