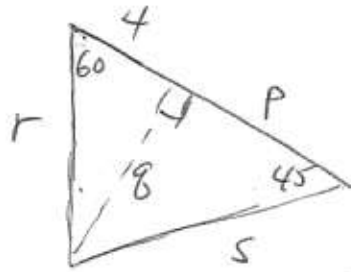
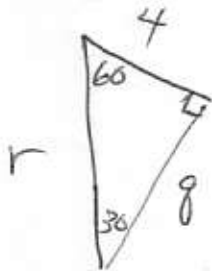


12

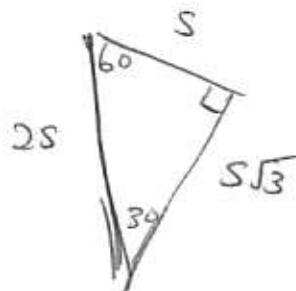


This figure is composed of a 30-60-90 triangle and a 45-45-90 triangle

We start working with the 30-60-90 triangle since it has a known side of 4



We then equate the left figure to the 30-60-90 template



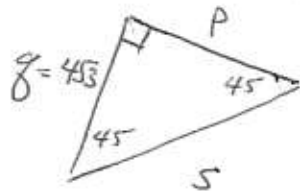
So

$$4 = s$$

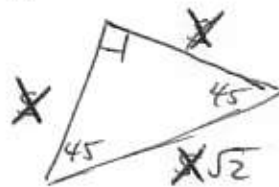
$$r = 2s = 8$$

$$g = s\sqrt{3} = 4\sqrt{3}$$

Now that we know g , we work the 45-45-90



We equate the left figure with

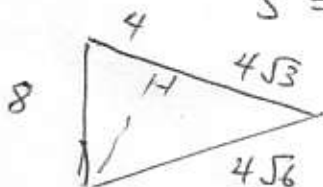


$$\text{So } 4\sqrt{3} = x$$

$$p = x = 4\sqrt{3}$$

$$s = x\sqrt{2} = 4\sqrt{3} \cdot \sqrt{2} = 4\sqrt{6}$$

so



Perimeter = add all outer edges

$$= 8 + 4 + 4\sqrt{3} + 4\sqrt{6}$$

$$= 12 + 4\sqrt{3} + 4\sqrt{6}$$