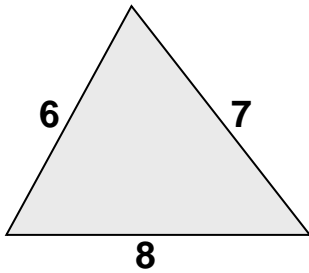


# Unequal Triangles

It is possible to get the area of any triangle once you have the length of each of the three sides by using the following formula:

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)} \quad \text{where } s = \frac{a+b+c}{2}$$

**Q. 1(Example):**



$$s = \frac{a+b+c}{2}$$

$$s = \frac{6+7+8}{2}$$

$$s = \frac{21}{2}$$

$$s = 10.5$$

$$\text{Area} = \sqrt{s(s-a)(s-b)(s-c)}$$

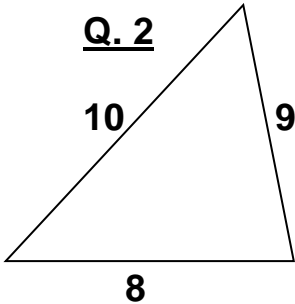
$$= \sqrt{10.5(10.5 - 6)(10.5 - 7)(10.5 - 8)}$$

$$= \sqrt{10.5 (4.5) (3.5) (2.5)}$$

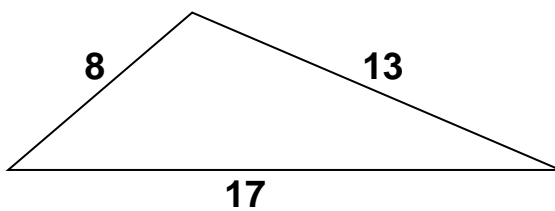
$$= \sqrt{413.4375}$$

$$= \underline{\underline{20.333^2}}$$

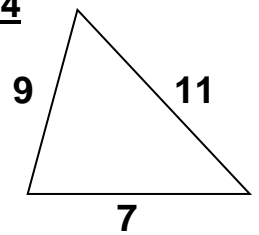
**Q. 2**



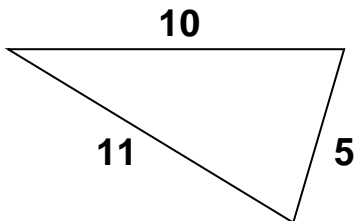
**Q. 3**



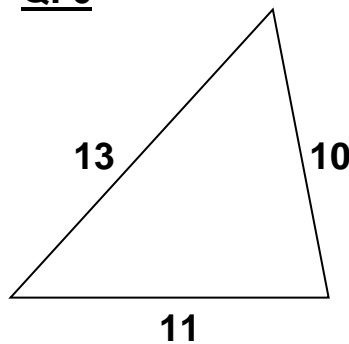
**Q. 4**



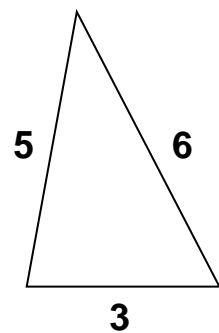
**Q. 5**



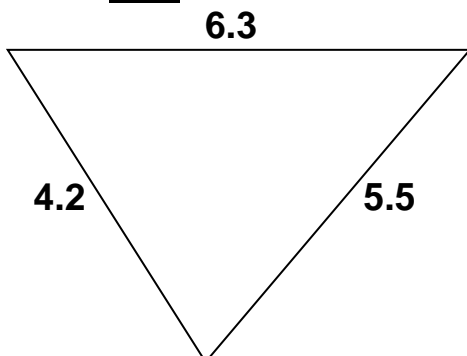
**Q. 6**



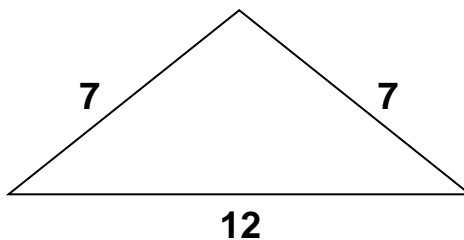
**Q. 7**



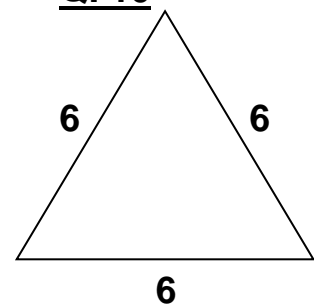
**Q. 8**



**Q. 9**

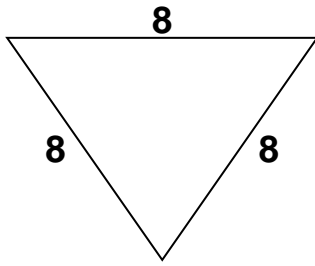


**Q. 10**

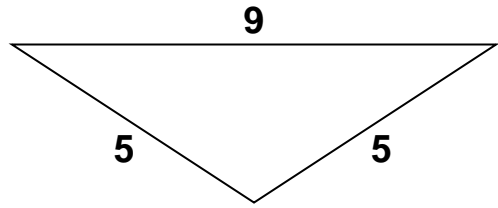


## Unequal Triangles (continued)

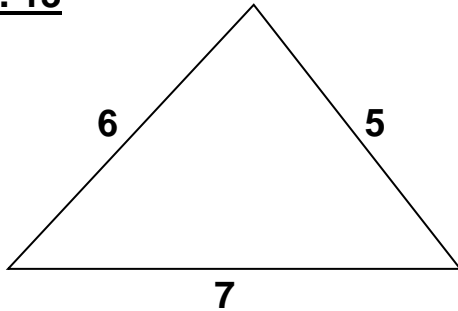
Q. 11



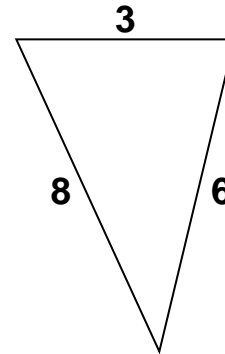
Q. 12



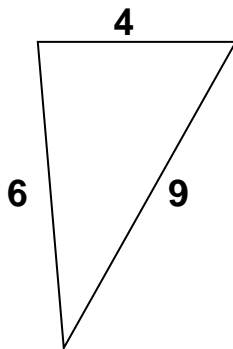
Q. 13



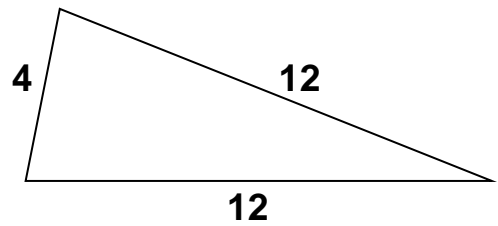
Q. 14



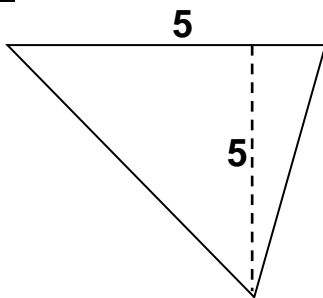
Q. 15



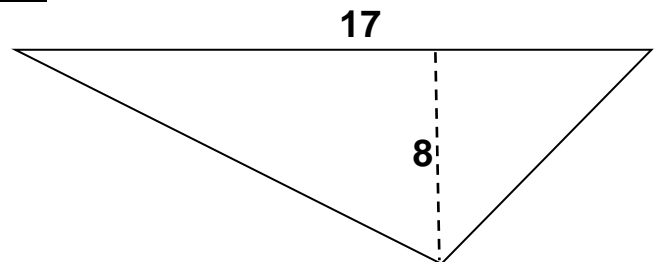
Q. 16



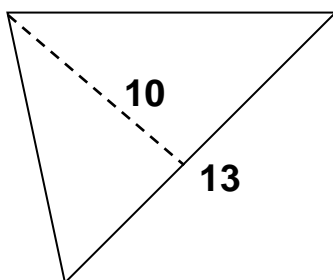
Q. 17



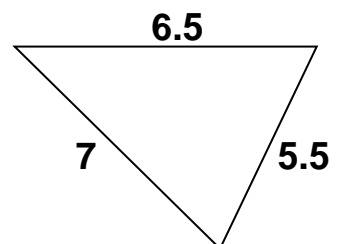
Q. 18



Q. 19



Q. 20



## Unequal Triangles (answers)

- Q. 2**  $10+9+8= 27/2 =13.5$   $\Rightarrow$   $\frac{\sqrt{13.5(3.5)(4.5)(5.5)}}{\sqrt{1169.4375}} = 34.197^2$
- Q. 3**  $8+13+17= 38/2 =19$   $\Rightarrow$   $\frac{\sqrt{19(2)(6)(11)}}{\sqrt{2508}} = 50.08^2$
- Q. 4**  $9+11+7= 27/2 =13.5$   $\Rightarrow$   $\frac{\sqrt{13.5(2.5)(4.5)(6.5)}}{\sqrt{987.1875}} = 31.42^2$
- Q. 5**  $10+11+5= 26/2 =13$   $\Rightarrow$   $\frac{\sqrt{13(3)(2)(8)}}{\sqrt{624}} = 24.98^2$
- Q. 6**  $13+10+11= 34/2 =17$   $\Rightarrow$   $\frac{\sqrt{17(4)(7)(6)}}{\sqrt{2856}} = 53.442^2$
- Q. 7**  $3+5+6= 14/2 =7$   $\Rightarrow$   $\frac{\sqrt{7(4)(2)(1)}}{\sqrt{56}} = 7.483^2$
- Q. 8**  $6.3+4.2+5.5= 16/2 =8$   $\Rightarrow$   $\frac{\sqrt{8(1.7)(3.8)(2.5)}}{\sqrt{129.2}} = 11.367^2$
- Q. 9**  $7+7+12= 26/2 =13$   $\Rightarrow$   $\frac{\sqrt{13(1)(6)(6)}}{\sqrt{468}} = 21.633^2$
- Q. 10**  $6+6+6= 18/2 =9$   $\Rightarrow$   $\frac{\sqrt{9(3)(3)(3)}}{\sqrt{243}} = 15.588^2$
- Q. 11**  $8+8+8= 24/2 =12$   $\Rightarrow$   $\frac{\sqrt{12(4)(4)(4)}}{\sqrt{768}} = 27.713^2$
- Q. 12**  $9+5+5= 19/2 =9.5$   $\Rightarrow$   $\frac{\sqrt{9.5(0.5)(4.5)(4.5)}}{\sqrt{96.1875}} = 9.808^2$
- Q. 13**  $6+5+7= 18/2 =9$   $\Rightarrow$   $\frac{\sqrt{9(3)(4)(2)}}{\sqrt{216}} = 14.697^2$
- Q. 14**  $3+8+6= 17/2 =8.5$   $\Rightarrow$   $\frac{\sqrt{8.5(5.5)(0.5)(2.5)}}{\sqrt{58.4375}} = 7.644^2$
- Q. 15**  $4+6+9= 19/2 =9.5$   $\Rightarrow$   $\frac{\sqrt{9.5(5.5)(3.5)(0.5)}}{\sqrt{91.4375}} = 9.562^2$
- Q. 16**  $12+12+4= 28/2 =14$   $\Rightarrow$   $\frac{\sqrt{14(2)(2)(10)}}{\sqrt{560}} = 23.664^2$
- Q. 17**  $\frac{1}{2} \times 5 \times 5 = 12.5^2$
- Q. 18**  $\frac{1}{2} \times 17 \times 8 = 68^2$
- Q. 19**  $\frac{1}{2} \times 13 \times 10 = 65^2$
- Q. 20**  $6.5+5.5+7= 19/2 =9.5$   $\Rightarrow$   $\frac{\sqrt{9.5(3)(4)(2.5)}}{\sqrt{285}} = 16.882^2$