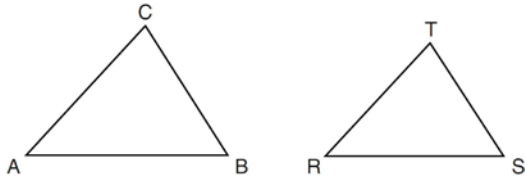


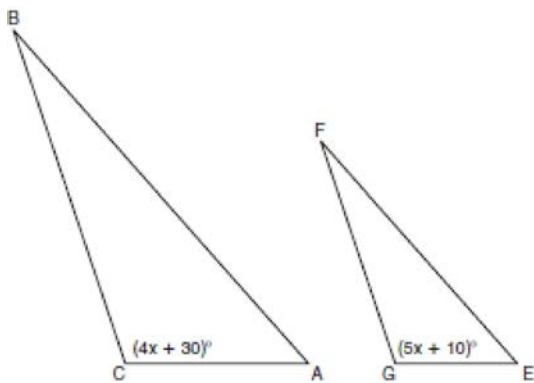
**G.G.45: Similarity 1: Investigate, justify, and apply theorems about similar triangles**

- 1 In the diagram below,  $\triangle ABC \sim \triangle RST$ .

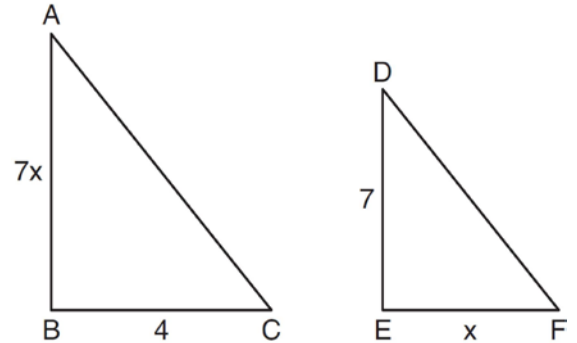


Which statement is *not* true?

- 1)  $\angle A \cong \angle R$
  - 2)  $\frac{AB}{RS} = \frac{BC}{ST}$
  - 3)  $\frac{AB}{BC} = \frac{ST}{RS}$
  - 4)  $\frac{AB + BC + AC}{RS + ST + RT} = \frac{AB}{RS}$
- 2 Scalene triangle  $ABC$  is similar to triangle  $DEF$ . Which statement is *false*?
- 1)  $AB:BC=DE:EF$
  - 2)  $AC:DF=BC:EF$
  - 3)  $\angle ACB \cong \angle DFE$
  - 4)  $\angle ABC \cong \angle EDF$
- 3 If  $\triangle ABC \sim \triangle ZXY$ ,  $m\angle A = 50$ , and  $m\angle C = 30$ , what is  $m\angle X$ ?
- 1) 30
  - 2) 50
  - 3) 80
  - 4) 100
- 4 In the diagram below,  $\triangle ABC \sim \triangle EFG$ ,  $m\angle C = 4x + 30$ , and  $m\angle G = 5x + 10$ . Determine the value of  $x$ .

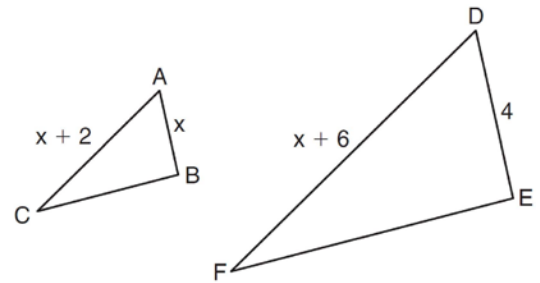


- 5 As shown in the diagram below,  $\triangle ABC \sim \triangle DEF$ ,  $AB = 7x$ ,  $BC = 4$ ,  $DE = 7$ , and  $EF = x$ .



What is the length of  $\overline{AB}$ ?

- 1) 28
  - 2) 2
  - 3) 14
  - 4) 4
- 6 In the diagram below,  $\triangle ABC \sim \triangle DEF$ ,  $DE = 4$ ,  $AB = x$ ,  $AC = x + 2$ , and  $DF = x + 6$ . Determine the length of  $\overline{AB}$ . [Only an algebraic solution can receive full credit.]



**G.G.45: Similarity 1: Investigate, justify, and apply theorems about similar triangles  
Answer Section**

1 ANS: 3 REF: 061224ge

2 ANS: 4 REF: 081216ge

3 ANS: 4  
 $180 - (50 + 30) = 100$ 

REF: 081006ge

4 ANS:  
20.  $5x + 10 = 4x + 30$   
 $x = 20$ 

REF: 060934ge

5 ANS: 3  
 $\frac{7x}{4} = \frac{7}{x} \cdot 7(2) = 14$  $7x^2 = 28$   
 $x = 2$ 

REF: 061120ge

6 ANS:  
2  $\frac{x+2}{x} = \frac{x+6}{4}$   
 $x^2 + 6x = 4x + 8$   
 $x^2 + 2x - 8 = 0$   
 $(x+4)(x-2) = 0$   
 $x = 2$ 

REF: 081137ge