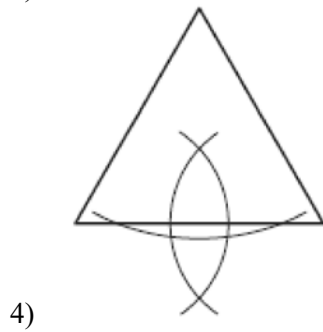
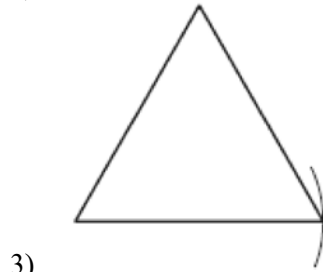
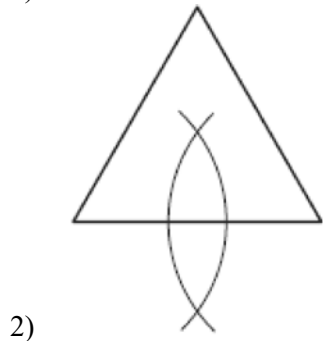
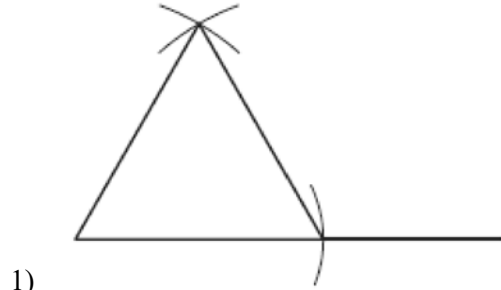
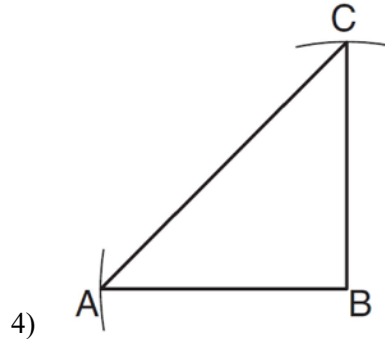
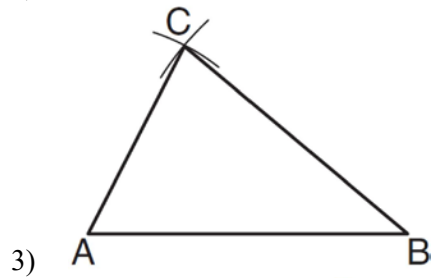
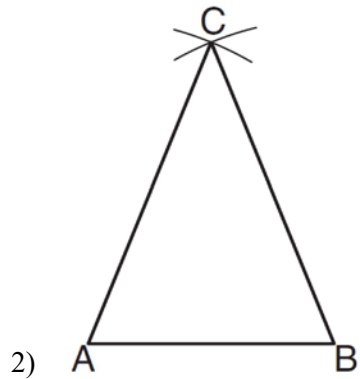
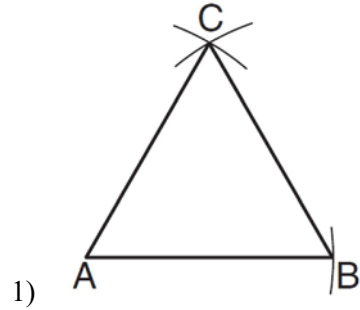


**G.CO.D.12: Constructions 4**

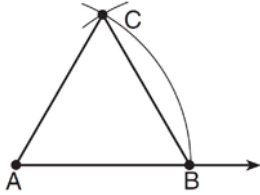
1 Which diagram shows the construction of an equilateral triangle?



2 Which diagram represents a correct construction of equilateral  $\triangle ABC$ , given side  $\overline{AB}$ ?



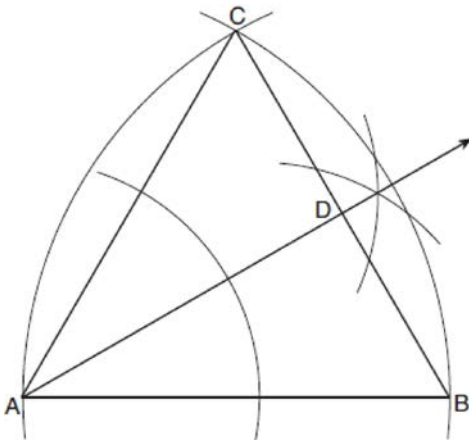
- 3 The diagram below shows the construction of an equilateral triangle.



Which statement justifies this construction?

- 1)  $\angle A + \angle B + \angle C = 180$
- 2)  $m\angle A = m\angle B = m\angle C$
- 3)  $AB = AC = BC$
- 4)  $AB + BC > AC$

- 4 Using the construction below, state the degree measure of  $\angle CAD$ . Explain why.



- 5 Using a compass and straightedge, and  $\overline{AB}$  below, construct an equilateral triangle with all sides congruent to  $\overline{AB}$ . [Leave all construction marks.]



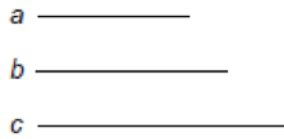
- 6 On the line segment below, use a compass and straightedge to construct equilateral triangle  $ABC$ . [Leave all construction marks.]



- 7 Using a compass and straightedge, on the diagram below of  $\overleftrightarrow{RS}$ , construct an equilateral triangle with  $\overline{RS}$  as one side. [Leave all construction marks.]



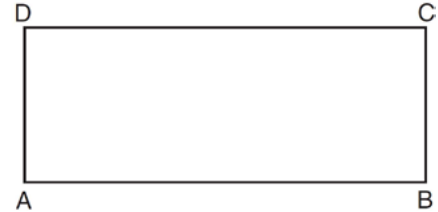
- 8 Construct a triangle with sides of lengths  $a$ ,  $b$ , and  $c$ , as shown below. Be sure the longest side of your triangle lies on  $\overline{PQ}$  and that point  $P$  is one of the triangle's vertices. [Show all arcs necessary for a valid construction.]



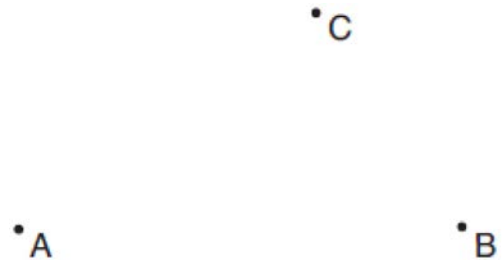
- 9 Segment  $\overline{CA}$  is drawn below. Using a compass and straightedge, construct isosceles right triangle  $CAT$  where  $\overline{CA} \perp \overline{CT}$  and  $\overline{CA} \cong \overline{CT}$ . [Leave all construction marks.]



- 10 On the ray drawn below, using a compass and straightedge, construct an equilateral triangle with a vertex at  $R$ . The length of a side of the triangle must be equal to a length of the diagonal of rectangle  $ABCD$ .



- 11 Given points  $A$ ,  $B$ , and  $C$ , use a compass and straightedge to construct point  $D$  so that  $ABCD$  is a parallelogram. [Leave all construction marks.]



**G.CO.D.12: Constructions 4**  
**Answer Section**

1 ANS: 1 REF: 061012ge

2 ANS: 1 REF: 011207ge

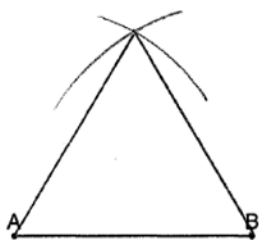
3 ANS: 3 REF: 011309ge

4 ANS:

$30^\circ$   $\triangle CAD$  is an equilateral triangle, so  $\angle CAB = 60^\circ$ . Since  $\overrightarrow{AD}$  is an angle bisector,  $\angle CAD = 30^\circ$ .

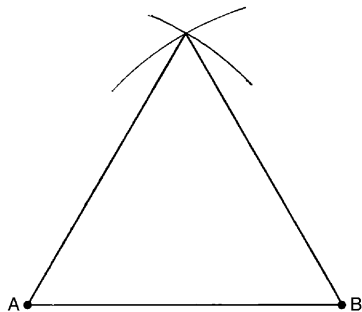
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5 ANS:



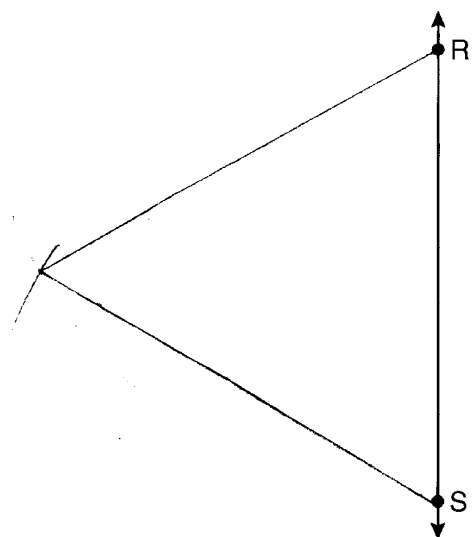
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6 ANS:



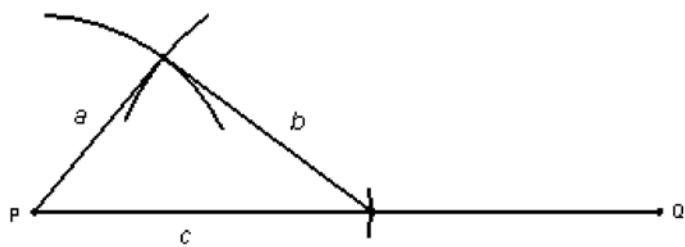
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7 ANS:



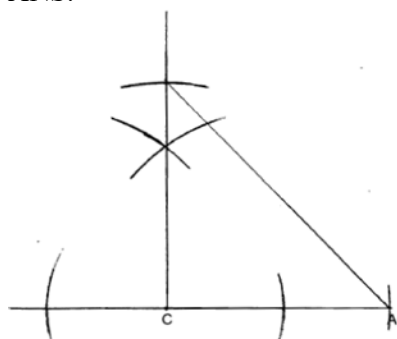
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8 ANS:



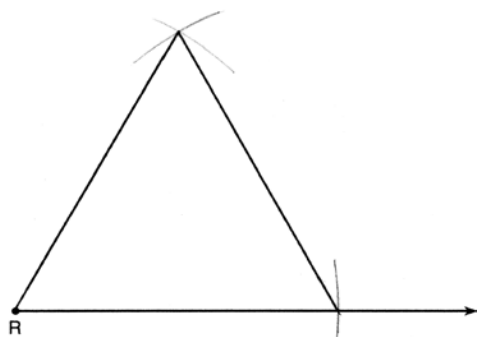
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9 ANS:



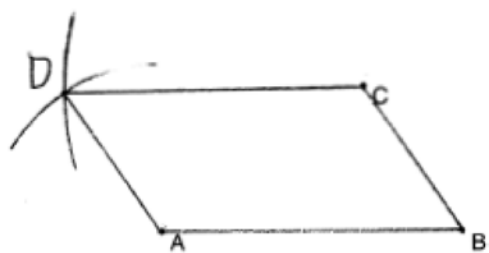
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10 ANS:



REF: 061332ge

11 ANS:



REF: 011929geo