

Name: KEY

Date: \_\_\_\_\_

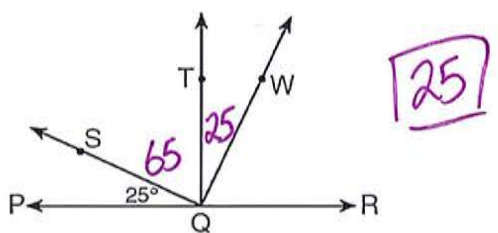
1. Phil is cutting a triangular piece of tile. If the triangle is scalene, which set of numbers could represent the lengths of the sides?

- (1) {2, 4, 7}      (2) {4, 5, 6}   
 (3) {3, 5, 8}      (4) {5, 5, 8}

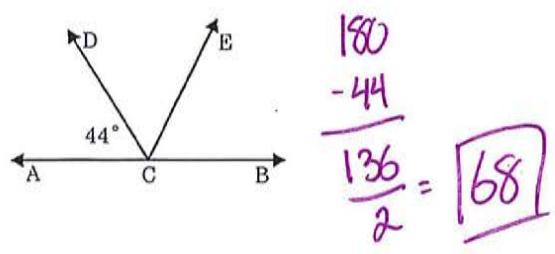
2. Which set of numbers represents the lengths of the sides of a triangle?

- (1) {5, 18, 13} X      (2) {6, 17, 22} ✓   
 (3) {16, 24, 7} X      (4) {26, 8, 15} X

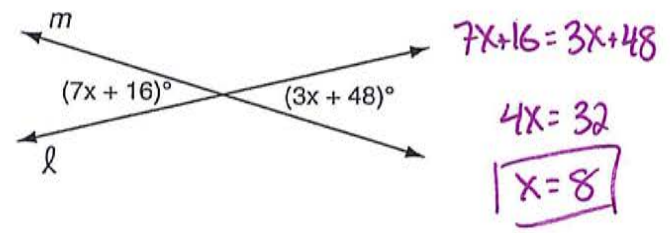
3. In the accompanying diagram,  $\overline{QT} \perp \overline{PQR}$  at Q,  $\overline{QW} \perp \overline{QS}$  at Q, and  $m\angle SQP = 25$ . Find  $m\angle TQW$ .



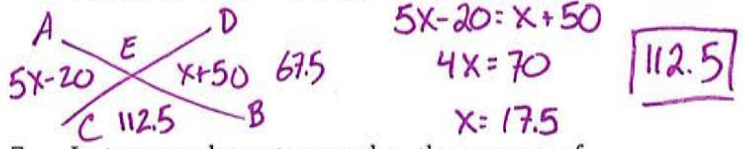
4. In the accompanying diagram,  $\overline{ACB}$  is a straight line,  $m\angle DCA = 44$ , and  $\overline{CE}$  bisects  $\angle DCB$ . Find  $m\angle ECB$ .



5. The accompanying diagram shows intersecting lines  $l$  and  $m$ . Solve for the value of  $x$ .



6.  $\overline{AB}$  and  $\overline{CD}$  intersect at E. If  $m\angle AEC = 5x - 20$  and  $m\angle BED = x + 50$ , find, in degrees,  $m\angle CEB$ .



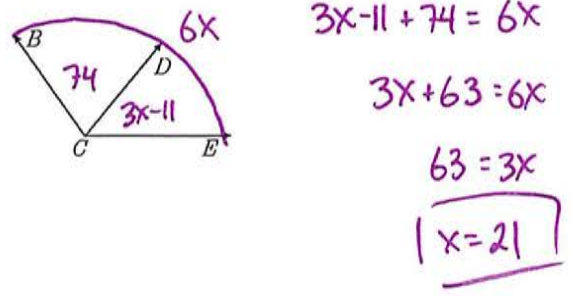
7. In two supplementary angles, the measure of one angle is 6 more than twice the measure of the other. The measures of these two angles are

- (1)  $26^\circ$  and  $62^\circ$       (2)  $32^\circ$  and  $58^\circ$       (3)  $58^\circ$  and  $122^\circ$       (4)  $62^\circ$  and  $118^\circ$    
 Handwritten equations:  $x + (2x + 6) = 180$ ,  $3x = 174$ ,  $x = 58$

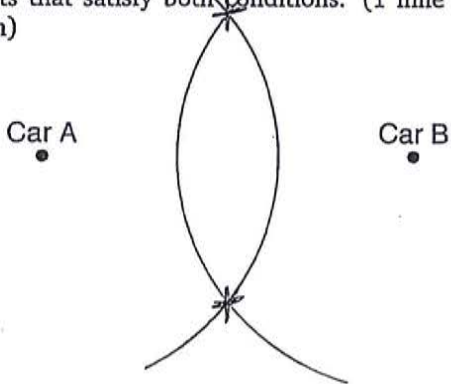
8. The measures of two complementary angles are in the ratio 5 : 1. What is the measure, in degrees, of the smaller angle?



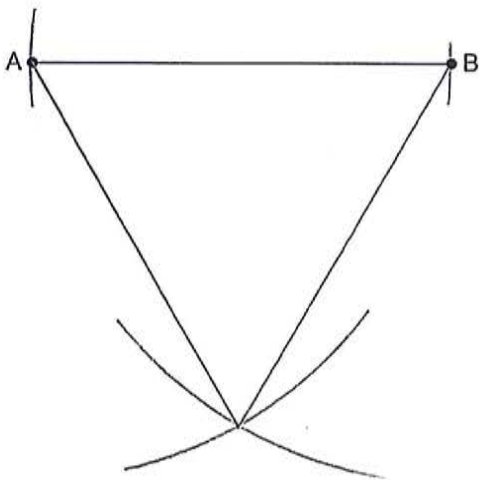
9. In the accompanying diagram,  $m\angle ECB = 6x$ ,  $m\angle ECD = 3x - 11$ , and  $m\angle DCB = 74$ . What is the value of  $x$ ?



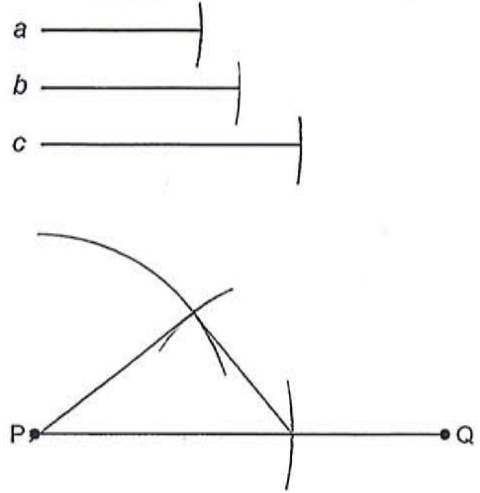
10. In the diagram below, car A is parked 5 miles from car B. Sketch the points that are 3 miles from car A and sketch the points that are 3 miles from car B. Label with an X all points that satisfy both conditions. (1 mile = 1 cm)



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



12. 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.]



13. Using a compass and straightedge,  $\triangle ABC$  construct  $\triangle DEF$  such that  $\triangle ABC \cong \triangle DEF$ .

