Practice Problems Unit 3

Patrick Flaherty

Problem #1

In triangle ABC, angles A and B are 4:6 respectively, and the measure of angle C is 80 degrees. What is the measure of angle A?

Given angles A and B are 4:6, we can write that as m<A = 4x, and m<B = 6x. By triangle sum theorem, we know that m<A plus m<B plus m<C is equal to 180 degrees. Since m<C is 80 degrees, we can substitute it and our other values in to have 4x + 6x + 80° = 180°, simplified as 10x + 80° = 180°. Through the subtraction property of equality, we can subtract 80 from both sides, to get 10x = 100°. If we divide both sides by 10, we get x = 10°. Congradulations! You aren't done! Remember, m<A is 4x, and 4 times 10 is 40, so the answer is. . . m<A = 40°

Problem #2

Given AB is congruent to AC and m<A is 40°, what is the measure of the linear pair of <B?

Since AB is congruent to AC, we can tell that A is the vertex angle, and triangle ABC is isosceles. Since ABC is isosceles, the base angles (B and C) are congruent. Through triangle sum theorem, we can tell that <A plus <B plus <C is equal to 180°. By substitution, 40° + <B + <C = 180°. If we subtract 40 from both sides, we get <B + <C = 140°. Since <B and <C are of the same measure, we can say that they are 70° each. If m<B = 70°, the linear pair theorem means 180 - m<B is the measure of the linear pair. In other words, the measure of the linear pair of <B is 110°.