

Name:

Date:

1. For the first house call, Emilio charges  $\$25 + \$15 = \$40$ .  
For the second house call, Emilio charges  $\$25 + 2(\$15) = \$55$ .  
For the last call, Emilio charges  $\$25$ .  
He charged a total of  $\$40 + \$55 + \$25 = \boxed{\$120}$ .

2.  $\boxed{5}$

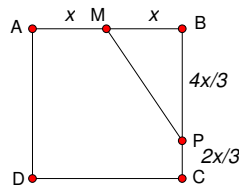
3.  $\boxed{7}$

4.  $\boxed{5 : 4}$

5.  $\boxed{100}$

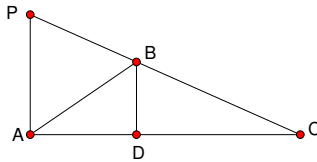
6.  $\boxed{2}$

7. Suppose  $AM = MB = x$ . Then  $BP = \frac{4x}{3}$  and  $PC = \frac{2x}{3}$ .  
 $[AMPCD] = [ABCD] - [MBP] = (2x)^2 - \frac{1}{2}\left(\frac{4x}{3}\right)x = 4x^2 - \frac{2x^2}{3} = \frac{10x^2}{3}$   
 $[AMPCD] : [MBP] = \frac{10x^2}{3} : \frac{2x^2}{3} = \boxed{5 : 1}$



8.  $\boxed{64}$

9. This problem was missing a key piece of information that  $\triangle PAC$  was a right triangle.  
Since  $\overline{BD}$  bisects  $\angle ABC$ ,  $\angle ABD \cong \angle CBD$ . Since  $\overline{PA} \parallel \overline{BD}$ ,  $\angle ADB = 90 = \angle CDB$  so we now have  $\triangle ABD \sim \triangle CBD$ . Using the proper ratios, we get that  $AB = \boxed{9}$ .



10. Let  $\angle A = \angle ACB = \angle BCD = x$ . Then  $\angle ABC = 180 - 2x$  and  $\angle CBD = (180 - x)/2$ .  
 $\angle ABC + \angle CBD = 180$  gives us an equation:  $180 - 2x + \frac{180 - x}{2} = 180$ . This yields the solution  
 $x = \boxed{36^\circ}$

