

CH 580 Ch 6 Acidity

1. A and B

$$10. V_{max} = 100$$

$$K_m = 0.0002 M$$

2. C

V_{max} does not change so
likely competitive inhibitor.

3. D

4. B

11. With a competitive inhibitor, K_m
should have a perceived increase.

5. A

and V_{max} should be the same.

6. B

Thus, A and C have the same

7. C

K_{max} y-intercept, but the
slope for A is a lower negative

slope. Thus, A is the correct one.

$$8. V_{max} = k_{cat} [E]$$

$$[E] = 10 \mu g \times \frac{1 g}{10^6 \mu g} \times \frac{1 mol}{50000 g} = 2 \times 10^{-10} mol = 2 \times 10^{-4} \mu mol$$

$$v = k_{cat} [E] \frac{[S]}{[S] + K_m} \quad [S] = 100 K_m$$

$$v = k_{cat} [2 \times 10^{-4}] \left(\frac{100}{101} \right) \Rightarrow k_{cat} = 126250 \text{ min}^{-1}$$

9. Histidine as a base would be able to remove the
H from the R group of serine, allowing serine to
use its negative charge as a nucleophile to
form covalent bonds for covalent catalysis.