

# Math 200 - Quiz 5

October 6, 2010

Name key

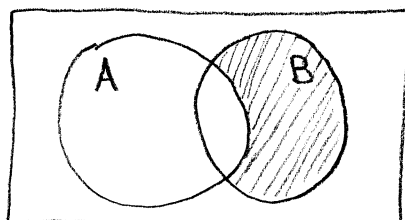
Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary.

1. (1 point) Let  $A = \{x, y\}$  and  $B = \{a, b, c\}$ . Find  $B \times A$ .

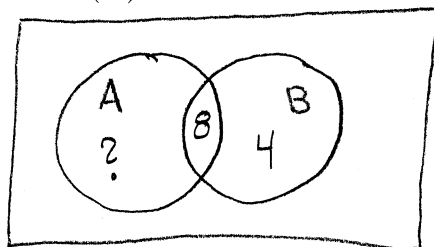
$$B \times A = \{ (a, x), (a, y), (b, x), (b, y), (c, x), (c, y) \}$$

2. (1 point) Shade the portion of a two-set Venn diagram that corresponds to  $\overline{A \cap B}$ .



$\overline{A \cap B}$   
OUTSIDE OF A  
AND IN B

3. (1 point) Use a two-set Venn diagram to help you determine  $n(A)$  if  $n(A \cup B) = 22$ ,  $n(A \cap B) = 8$ , and  $n(B) = 12$ .



$$? + 8 + 4 = 22$$

$$\Rightarrow ? = 10$$

$$\Rightarrow n(A) = 10 + 8 = 18$$

4. (1 point) Convert  $2032_{\text{four}}$  to base ten.

$$2 \times 4^3 + 0 \times 4^2 + 3 \times 4 + 2$$

$$= 2 \times 64 + 3 \times 4 + 2 = 128 + 12 + 2 = 142$$

5. (1 point) Write the first ten counting numbers in base three.

1, 2, 10, 11, 12, 20, 21, 22, 100, 101

← THESE  
ARE ALL  
BASE-THREE  
NUMERALS.