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Discussion section 1: Math review

1. Which of the following is the smallest?
   (a) $3/4$
   (b) $4/5$
   (c) $59/60$
   (d) $100/101$

2. If $3x - x + 6x = 5y - 20$, and if $y = 8$, what is the value of x?

3. You are given the following equation:

$$a = 1.96\sqrt{\frac{p(1-p)}{n}}$$

   You are also told that:
   - $p = 0.3$
   - a cannot be larger than 0.06
   - n is a whole number

   What is the lowest value n can take on?

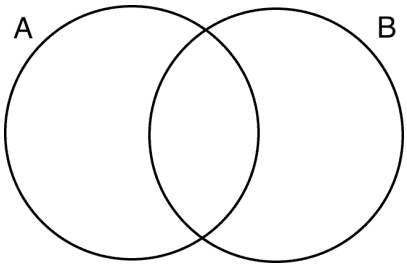
4. Two jars, A and B, are filled with pink and blue chips. Jar A has 6 pink and 60 blue chips. Jar B has 4 pink and 40 blue chips. You shake both jars and draw a chip from each without looking. Which container gives you the best chance of drawing a pink marble?

5. There are 10 cats in a shelter. Mine wants to adopt at most 3 cats. What are the possible number of cats she can adopt?

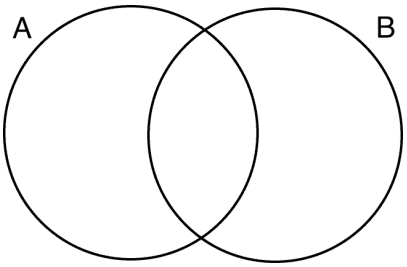
6. On a game show, 10 questions are asked to contestants. If a contestant gets at least one question wrong, they lose the entire game. How many questions should contestants get right to win the game?

7. In the Venn diagrams below, shade the following areas:

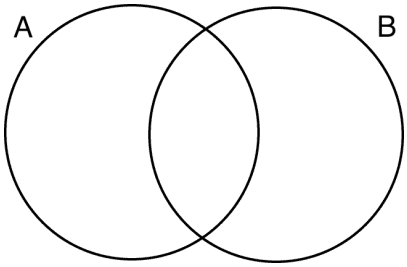
   (a) A but not B

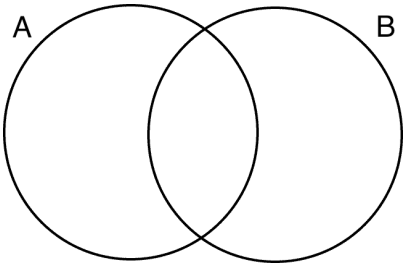
   (c) A or B

   (b) A and B

   (d) neither A nor B

8. Solve $3(6+4)(5-3)$.

9. The standard deviation is defined as

$$s = \sqrt{\frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{n-1}}$$

   What is the standard deviation of the following dataset: {5, 8, 5, 4, 8}?

10. Which of the following datasets has a higher standard deviation? Answer without actually calculating the standard deviation.

    (a) 3, 4, 5, 5, 6

    (b) 100, 100, 100, 100, 101