Canine Care, Coat Color and Litter Size

1) \( \frac{28}{2} + \frac{42}{3} = \) ____

2) \( 2 \left( \frac{40}{4} + \frac{100}{20} \right) + \frac{88}{11} = \) ____

3) \( \frac{80}{1} - \frac{35}{7} + \frac{13}{1} = \) ____

4) \( \frac{18}{2} \left( \frac{1000}{200} + \frac{12}{3} \right) + \frac{39}{3} = \) ____

5) \( \frac{48}{4} \times \frac{144}{12} = \) ____

6) \( \frac{1000}{50} \times \frac{24}{3} - \frac{48}{4} = \) ____

7) \( \frac{550}{11} \times \frac{24}{4} - \frac{51}{17} + \frac{138}{138} = \) ____

8) \( 10 \left( \frac{14}{7} \right) \left( \frac{6}{2} + \frac{420}{2} + \frac{32}{4} \right) = \) ____

9) For each of your answers 1-8, draw a dark square around the numbers in the box below.

Ex. If answer was 3: [Box with 1-5 numbers]

10) In order of answers 1-8, draw a line connecting your dark squares.

Ex. If answers were; 1) 3 2) 5 3) 55 4) 53

[Diagram with lines connecting the numbers]
Labrador Retrievers (Labs) love to play and run. It’s best if they have over 10,000 square feet of yard space (area). The above drawing represents an overhead view of a Lab owner’s yard.

11) If the distance between each number was 10 feet, what is the perimeter of the enclosed yard?

13) Calculate the yard’s area.

14) Is this enough room for the Lab? ________

A Labrador Retriever breeder named Amy is attempting to plan for expenses of Lab care before Lab puppies are purchased and placed in a nurturing and loving home. Help Amy plan for expenses of future litters of Lab puppies.

Need-to-know DATA

- Labrador Retriever Average Litter Size—7 puppies
- Amy’s Labrador Macy typically produces litters where 4/7ths are black, 2/7ths are chocolate, and 1/7th is yellow
- Amy allows Macy to give birth to 1 litter per year.

Scenario 1: On day 1, Macy gives birth to her first litter of 7 puppies. A year later, each of those 7 give birth to 7 and Macy gives birth to another 7 puppies.

14) How many total dogs is Amy now caring for? ________

15) Not counting Macy, and assuming the coat color odds remain fixed, how many of the first and second generation puppies are black? _______ are chocolate? _______ are yellow? _______

Scenario 2: Amy will spend an average of $5.00 per day caring for each Lab puppy and won’t let any Lab puppies go to their new homes until they are at least 8 weeks old.

16) Assuming they are placed in new homes after 8 weeks, how much would Amy need to charge per Lab puppy so that there is no net gain or loss? Show your work!

17) Suppose a puppy didn’t go to his/her new home until it was 10 weeks old. How much would Amy need to charge to experience no net gain or loss?
**Scenario 3:** Analyze the graphs below. The first shows the relationship between time of year and interest in Lab puppies. The second graph shows the relationship between time of year and family travel.

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**Google Searches for Labrador Retrievers by Month**

- **Number of Searches (in thousands)**
  - January: 1000
  - February: 1500
  - March: 2000
  - April: 2500
  - May: 3000
  - June: 3500
  - July: 4000
  - August: 4500
  - September: 5000
  - October: 5500
  - November: 6000
  - December: 6500

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**Average Number of Travel Days Per Family By Month**

- **Average Days Traveling**
  - January: 1
  - February: 2
  - March: 3
  - April: 4
  - May: 5
  - June: 6
  - July: 7
  - August: 8
  - September: 9
  - October: 10
  - November: 11
  - December: 12

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*Labs are pregnant for approximately 2 months before giving birth.*

*Puppies need to be at least 8 weeks old before being placed in new homes.*

18) Based on the level of interest puppies during certain times of the year, which 2 months of the year would be best for Amy to have her dogs bred in order for quick placement? Explain your answer(s).

19) Why do you think there is such a high interest in buying a puppy in June and December?

20) Based on the average number of travel days per month, and understanding that puppies need many hours of attention and care, when would be a good time for a family to get a puppy? When should families consider not getting a puppy?