Student: _____ **Date:** _____ **Time:** _____	**Instructor:** Roger Goldwyn **Course:** MGF 1107--Math for Liberal Arts 2--Spring 2010 **Book:** Pirnot: Mathematics All Around, 4e	**Assignment:** Embedded questions MGF 1107--Spring 2009

1. Convert the following base ten number to a number in the indicated base.

213 to base six

$213 = \square_6$

2. Find the prime factorization of the following number. Write any repeated factors using exponents.

588

The prime factorization of 588 is $\square$.

3. Two people are jogging around a circular track in the same direction. One person can go completely around the track in 21 minutes. The second person takes 18 minutes. If they both start running in the same place at the same time, how long will it take them to be together at this place if they continue to run?

They will be together again after $\square$ minutes.

4. A parent died and left an estate to four children. One inherited $\frac{1}{4}$ of the estate, the second inherited $\frac{3}{16}$, and the third inherited $\frac{3}{8}$. How much did the fourth inherit?

The fourth child inherited $\square$ of the estate.
(Type a simplified fraction.)

5. Kate has two part-time jobs. Her job in a deli pays $6.03 per hour and her work in a craft store pays $7.16 per hour. She earns $126 in a given week.

Choose the equation that correctly models the situation.

- A. $13.19(d + c) = 126$
- B. $6.03d + 7.16c = 126$
- C. $d + c = 139.19$
- D. $6.03c = 7.16d + 126$

6. Find the linear equation whose graph passes through the given points. Write the equation in slope-intercept form.

(3, 5) and (4, 7)

What is an equation of the line?

$y = \square$
(Simplify your answer. Type an expression using x as the variable.)

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7. Suppose that $50,000 is invested at 6% interest. Find the amount of money in the account after 3 years if the interest is compounded annually.

If interest is compounded annually, what is the amount of money after t = 3 years?

$ ☐

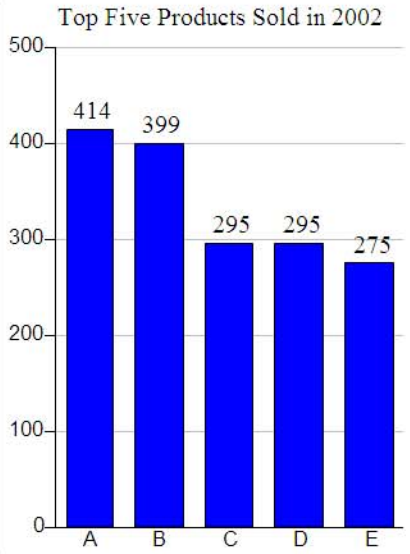
(Do not round until the final answer. Then round to the nearest cent as needed.)

8. To determine the number of trout in a lake, a conservationist catches 170 trout, tags them and throws them back into the lake. Later, 44 trout are caught; 11 of them are tagged. How many trout are in the lake?

There are ☐ trout in the lake.

9. Summarized on the right is the sale (in thousands) of the top five products in 2002. Use this information to calculate what percent of the sales of these five products was due to product B.

☐% of the sales of these five products was due to product B.
(Round to the nearest hundredth as needed.)



10. Due to a slump in the economy, a mutual fund has dropped by 30% from last year to this year. If the fund is now worth $12,950, how much was the fund worth last year?

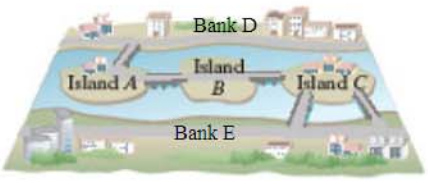
The fund was worth $☐ last year.

11. Sarafina is making monthly payments into an annuity. She wants to have $500 in the fund to buy a new convection range in six months, and the account pays 7.2% annual interest. What are her monthly payments to the account?

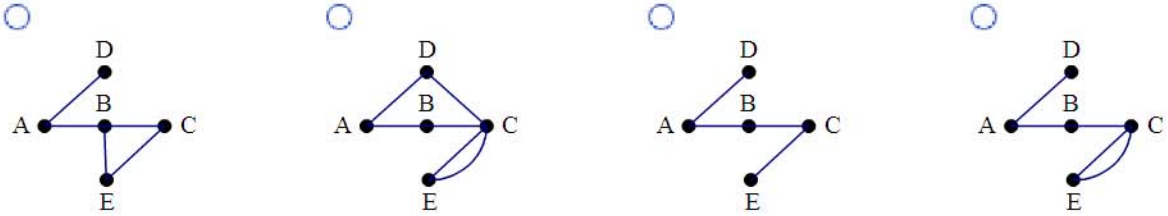
$☐

(Round the final answer to the nearest cent as needed. Round all intermediate values to eight decimal places as needed.)

12. The layout of a city with land masses and bridges is shown. Use this map to answer the questions below.



a. It is possible to draw a graph that models the layout of the city, where vertices represent land masses and edges represent bridges. Choose the graph below that models the city.



b. Use the graph from part (a) to answer the following question.

Is it possible for city residents to walk across all of the bridges without crossing the same bridge twice?

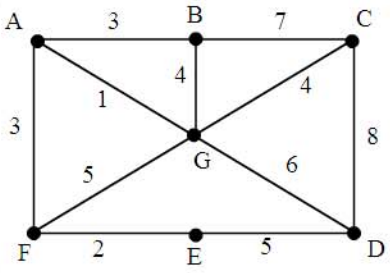
- Yes
- No

c. If such a walk is possible, choose the path below that describes one such walk.

- C, E, C, A, D
- D, A, B, C, E
- B, C, E, C, B, A, D
- D, A, B, C, E, C
- No such walk is possible.

13. Find the weight of the path DGCBAF.

The weight of the path is ☐.



14. Four candidates running for a vacant seat on the town council receive votes as follows: Callow, 2121; Levan, 1500; Edelson, 931; Borowski, 622. Determine whether any candidate earns a majority, and determine who wins using the plurality method.

Is there a candidate who earns a majority?

- ○ Yes
- ○ No

Who wins the election using the plurality method?

- ○ A. Levan
- ○ B. Borowski
- ○ C. Edelson
- ○ D. Callow

15. The university administration has asked a group of student leaders to vote on the aspects of college life to target for improvement over the next year. The choices were (H)ousing, (L)ibrary, (T)heater, and (F)itness center. The votes are summarized in the preference table.

	Number of Ballots				
Preference	12	27	19	9	6
1st	T	L	H	H	T
2nd	L	T	L	F	L
3rd	H	H	F	T	F
4th	F	F	T	L	H

What option is selected using the plurality method?

- ○ A. Housing
- ○ B. Library
- ○ C. Theater
- ○ D. Fitness center

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1. 553

2. $2^2 \cdot 3 \cdot 7^2$

3. 126

4. $\frac{3}{16}$

5. B

6. $2x - 1$

7. 59,550.80

8. 680

9. 23.78

10. 18,500

11. 82.09

12. the fourth choice
the first choice
the fourth choice

13. 23

14. the second choice
D

15. A