

Part A: Multiple Choice

Directions: For problems 1-5 circle the correct response. Each problem is with 2 points.

1. In a survey about a proposed change to school policy, 100 students were asked if they favor the change, oppose the change, or have no opinion about the change. The responses are indicated in the chart below.

	Men	Women	Total
Favor	18	9	27
Oppose	12	25	37
No opinion	20	16	36
Total	50	50	100

Find the probability that a randomly selected respondent *opposes* or *has no opinion* about the change in policy.

- a. 0.1332 b. 0.73 c. 0.096 d. 0.69 e. 0.144
2. Solve the equation $3x^2 = 57x$ using the method of your choice. You might want to try graphing or the quadratic formula. The value(s) of x that solve the equation are:
- a. $x = 19$ b. $x = -19$ c. $x = 19$ and $x = 0$ d. $x = -19$ and $x = 0$ e. $x = 0$

3. Find $g(-1)$ if $g(x) = -\left(\frac{1}{2}\right)^x$.

- a. $-\frac{1}{2}$ b. $\frac{1}{2}$ c. 0 d. -2 e. 2

4. In how many ways can the first three positions occur in a horse race with 11 horses?

- a. 165 b. 30 c. 6 d. 990 e. 860

5. Two dice are rolled. What is the probability that the numbers shown add up to 3?

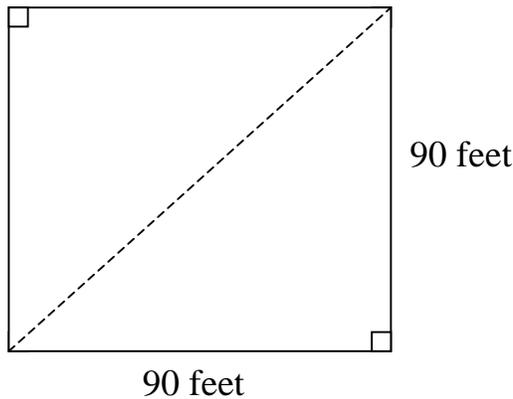
- a. $\frac{1}{36}$ b. $\frac{1}{3}$ c. $\frac{1}{18}$ d. $\frac{1}{9}$ e. $\frac{2}{9}$

For instructor's use only: score _____ out of 39

Part B: Completion Problems

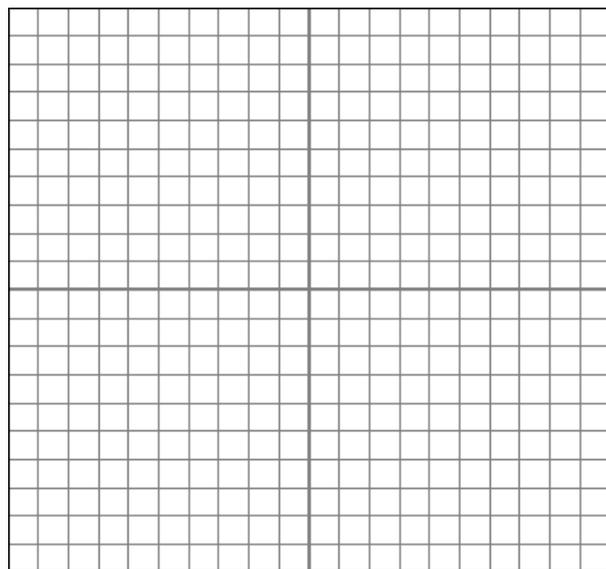
In this section show all work in the spaces provided. Write your final answers on the lines provided.

1. (2 points) A baseball diamond is really a square 90 feet on a side. The distance between home plate and 2nd base is the hypotenuse of a right triangle where the legs have length 90 feet. Use the Pythagorean Theorem to find the distance from home plate to 2nd base. Round to the nearest tenth.



2. (8 points) Let $h(x) = -2x^2 - 1$. Answer the following questions about h .
- Complete the table below for the given values of x .
 - On the grid below, make a graph of h .

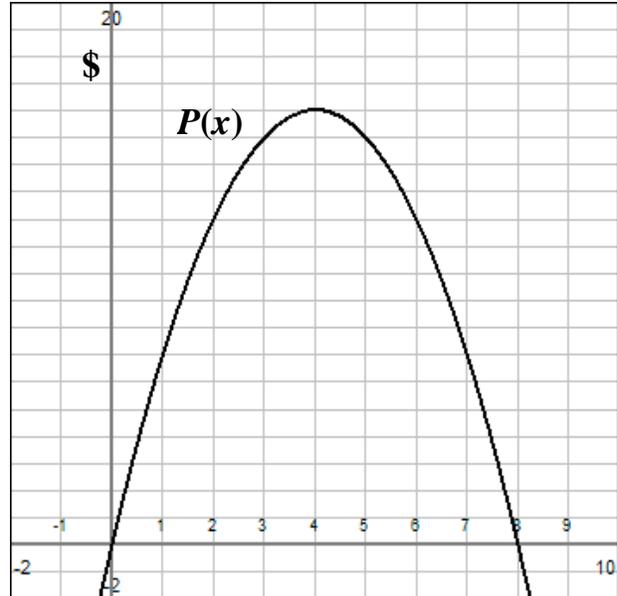
x	$h(x)$
-2	
-1	
0	
1	
2	



- c. Find all values of x for which $h(x) = -9$. _____

3. (5 points) Suppose that if a store sells x pieces of a clothing item, the profit in dollars will be given by the function formula $P(x) = -x^2 + 8x$. The graph of $P(x)$ is given below.

a. Evaluate $P(3)$. Explain the meaning of $P(3)$ in the context of this problem.



b. If the store makes a profit of 12 dollars, about how many pieces of clothing were sold?

c. What is the maximum possible profit? How many pieces of clothing would need to be sold to get the maximum profit?

Maximum profit _____

Number of pieces _____

4. (2 points) Suppose you are ordering a cell phone, and you must make the following choices.

- One of these colors must be chosen: red, blue, white, or green.
- One of these sizes must be chosen: small, medium, or large.
- One of these types of cases must be chosen: leather, plastic, denim, or cotton.

How many different possibilities are there when you order your phone?

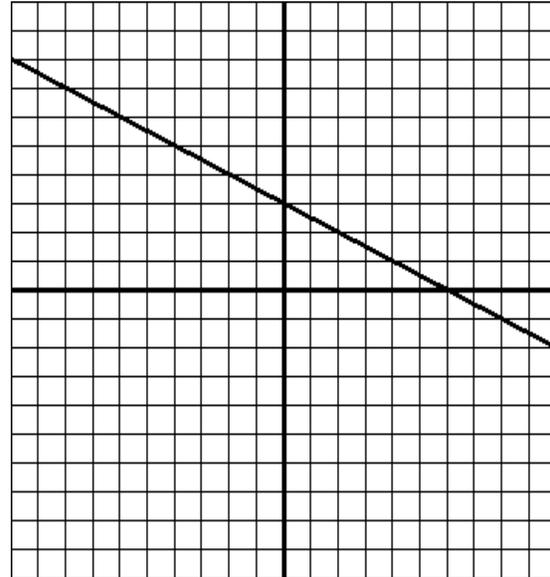
5. (5 points) The graph of line L is shown on the grid.
 a. Find the slope of the line.

- b. Find the y-intercept of the line.

- c. Write an equation for the line.

- d. Draw a line that is parallel to line L .

- e. Write an equation for the line you drew in part d.



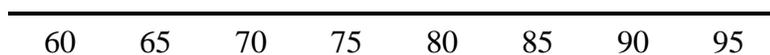
6. (7 points) Here are the weights in pounds of the students in a fourth grade class.

62, 65, 68, 70, 72, 75, 75, 76, 77, 78, 80, 81, 82, 84, 87, 87, 90

- a. Represent the students' weights as a stem-and-leaf plot (stemplot).

stem	leaves

- b. Draw a box-and-whisker plot on the number line given below.



Part A: Multiple Choice

Directions: For problems 1-5 circle the correct response. Each problem is with 2 points.

1. The tables below show the Current Health Costs (2005) and the projected Health Care Costs for 2006.

Health Care Costs (2005)		
	Single	Family
Comprehensive	\$694.32	\$1752.36
HMO Standard	\$451.80	\$1187.76
HMO Plus	\$489.48	\$1248.12

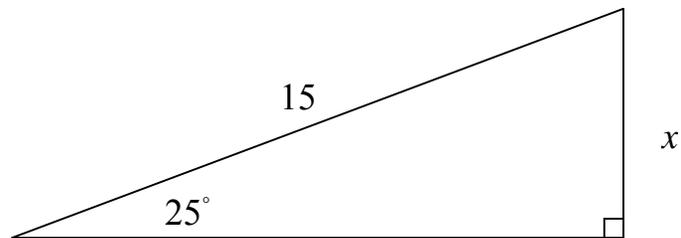
Health Care Costs (2006)		
	Single	Family
Comprehensive	\$683.91	\$1699.48
HMO Standard	\$463.10	\$1217.45
HMO Plus	\$499.27	\$1273.08

Which of the following matrices could represent the *average* Health Care Cost for 2005 and 2006?

- a. $\begin{bmatrix} 1378.23 & 3424.84 \\ 914.90 & 2405.21 \\ 988.75 & 2521.20 \end{bmatrix}$ b. $\begin{bmatrix} 689.12 & 1712.42 \\ 457.45 & 1202.61 \\ 494.38 & 1260.60 \end{bmatrix}$ c. $\begin{bmatrix} 689.02 & 1712.42 \\ 456.45 & 1202.61 \\ 494.38 & 1260.60 \end{bmatrix}$ d. none of these

2. Consider the following data set: 18,21,23,25,25,27,29,31,33,35. Which of the following statements is true?
- a. The mean is greater than the median.
 - b. The median is greater than the mean.
 - c. The mode is greater than the median.
 - d. The mode is greater than the mean.
 - e. The mean, median, and mode are all equal.

3. Find the length of side x of the triangle below.
- a. 13.6
 - b. 16.6
 - c. 6.3
 - d. 15.0
 - e. 7.5



For instructor's use only:
 score _____ out of 26 possible.

4. The multiplication $\begin{bmatrix} 2 & 3 \\ -1 & 0 \end{bmatrix} \cdot \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ is equal to:

a. 7

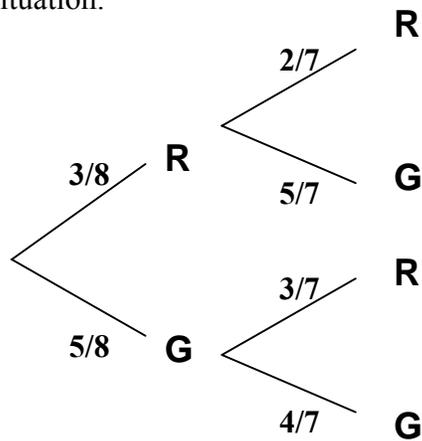
b. $\begin{bmatrix} 8 & -1 \end{bmatrix}$

c. $\begin{bmatrix} 8 \\ -1 \end{bmatrix}$

d. $\begin{bmatrix} 8 & -1 \\ -1 & 8 \end{bmatrix}$

e. none of these

5. A jar contains 3 red marbles and 5 green marbles. An experiment consists of drawing two marbles, one after the other, out of the jar. What is the probability that the first marble drawn is red and the second marble drawn is green? The tree diagram below illustrates this situation.



a. 0.21

b. 0.25

c. 0.27

d. 0.29

e. 0.30

Part B: Completion Section

In this section show all work in the spaces provided. Write your final answers on the lines provided.

1. (3 points) A table of values for a linear function is given.

x	y
-8	10
-6	7
-4	4
-2	1
0	-2
2	-5
4	-8
6	-11
8	-14

- a. What is the slope of the line?

- b. Write an equation for the line.

2. (5 points) Every consecutive day Syd cleans her room her parents give her pennies according to the following plan.

Day	# of pennies
1	2
2	4
3	8
4	16
5	32
6	64
7	128
8	256
9	512
10	1024

- a. If this pattern were to continue, how much money (in dollars and cents) would Syd earn on day 13?

- b. Which of the following functions could represent the number of pennies Syd's parents gave her on day t ? Circle all that apply.

i. $A(t) = 2t$

ii. $A(t) = 2t^2$

iii. $A(t) = 2^t$

- c. How many days would it take for Syd to accumulate at least \$250.00?

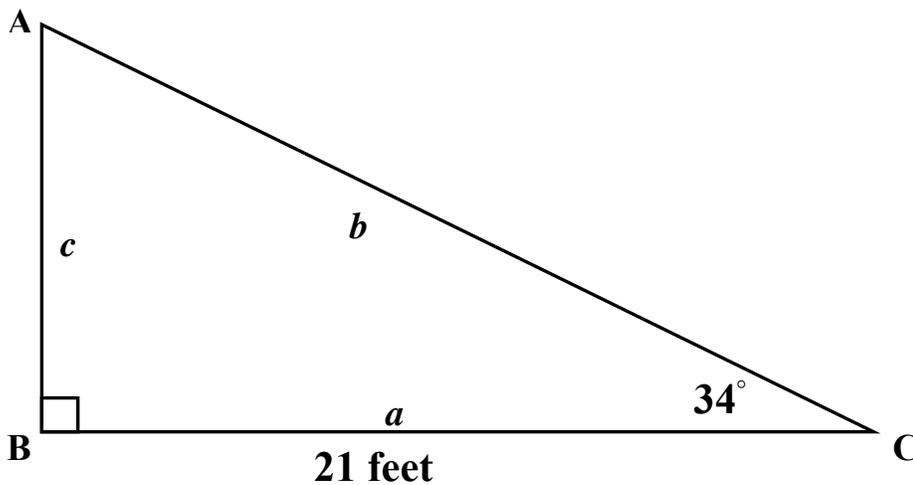
3. (4 points) The French Club currently has 58 members. Suppose that the membership grows by 10 people each month. The German Club currently has 48 members. Suppose that the membership grows by 25% each month. This information is organized in the table below.

a. Fill in the table below for month 3.

Month	German Club	French Club
0	48	58
1	60	68
2	75	78
3		

b. Pick either the German Club or the French Club and write an equation for the number of members, M , in that club after t months.

4. (4 points) In the triangle below, capital letters represent angles and lower case letters represent side lengths. Find the measurements of all sides and angles and complete the table below.



Angles	Sides
A = _____	$a = 21$ feet
B = _____	$b =$ _____
C = 34°	$c =$ _____