Math 1 Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
**Final Exam Review** Date\_\_\_\_\_\_\_\_

![[image]]()Use the following figure to answer questions 1-5.

1. If quadrilateral *ABCD* is reflected over the x-axis, the coordinates of  would be

 A)  B)  C)  D) 

1. If quadrilateral *ABCD* is reflected over the line, the coordinates of  would be

 A)  B)  C)  D) 

1. If quadrilateral *ABCD* is rotated  counterclockwise, the coordinates of  would be

 A)  B)  C)  D) 

1. If quadrilateral *ABCD* is rotated  counterclockwise, the coordinates of  would be

 A)  B)  C)  D) 

1. If quadrilateral *ABCD* is translated right 5 units and down 2 units, the coordinates of  would be

 A)  B)  C)  D) 

1. Draw a ray.
2. Draw an example of an angle bisector.
3. Draw an example of a linear pair.
4. Draw an example of vertical angles.
5. The vertices of Triangle I are *A*(-3, 6), *B*(-1, 2) and *C*(-5, 3). Triangle I is rotated counterclockwise, resulting in Triangle II. Triangle II is reflected over the y-axis, resulting in Triangle III.
6. On the coordinate plane below, **draw** and **label** Triangles I, II and III.

![[image]]()

1. Describe a single transformation that would
map Triangle I directly onto Triangle III.

(*x, y*) 🡪 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Given: Line *m* is parallel to line *n* with transversal *t*.

 Prove: 

1. Given: Line *m* is parallel to line *n* with transversal *t*.

Prove:  **(without using Alternate Interior Angles)**

1. Use the given diagram to answer the following question.

If  and , find 

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If   and , find 

1. 



1. 
2. 
3. 

**Use the picture on the right for question 20: Lines *s* and *t* are parallel.**

1. Angle L = 6*x* + 3, angle A = 5*7* – 12x. Solve for *x*

 A) 12 B) 3 C) 10 D) 7.5

**Use the picture on the right for questions 21-24. Lines *m* and *n* are parallel.**

1. What is the measure of angle E?

 A) 63 o B) 297o C) 27 o D) 117o

1. What is the measure of angle H?

 A) 117o B) 50o C) 63o  D) 127o

1. How are angle A and angle H related?

 A) Alternate Exterior B) Interior C) Corresponding D) Alternate Interior

1. How are angle G and angle C related?

A) Alternate Interior B) Interior C) Vertical D) Corresponding

1. Which of the following is an example of an exponential growth function?

A)  B)  C)  D)  E) 

1. Which of the following is an example of an exponential decay function?

A)  B)  C)  D)  E) 

**For questions 27-32, use the histogram to the right that displays how many free throws each student made out of 9 tries in Mr Kain’s 3rd period gym class.**

1. How many students shot free throws?

A) 9 students

B) 11 students

C) 53 students

 D) 58 students

1. How many total free throws were made?

A) 53 free throws

B) 289 free throws

C) 342 free throws

D) 9 free throws

1. Calculate the mean number of shots made.

(round to the nearest tenth)

A) 1 free throw made per student B) 4.5 free throws made per student

C) 5.4 free throws made per student D) 5.5 free throws made per student

1. What is the median number of shots made?

A) 5 free throws B) 6 free throws

C) 6.5 free throws D) 7 free throws

1. If Omar made seven free throws, what is his percentile?

A) 20th Percentile B) 62nd Percentile

 C) 70th Percentile D) 80th Percentile

1. If Karen is at the 40th percentile, this means that:

A) She made 40% of her free throws. B) 40% of the people scored higher than Karen.

C) 40% of the people scored at or below Karen. D) 40 People scored less than Karen.

**Use the frequency table below for questions 33 - 34.**

The following table displays the number of female’s that live in the same house.

|  |  |
| --- | --- |
| Number of females that live at home | Frequency |
| 0 | 4 |
| 1 | 12 |
| 2 | 10 |
| 3 | 8 |
| 4 | 4 |
| 5 | 0 |
| 6 | 2 |
| 7 | 0 |

33. What is the mean number of females that live in the same house?

1. 2.1 females B) 1 female

C) 1.9 females D) 2 females

34. What is the median number of females that live at home?

1. 2.1 females B) 1 female

C) 1.9 females D) 2 females

35. Assume a plant of height 14 cm grows at a constant rate of 8% per day. Write a recursive formula that would give the height of the plant at the end of each day based on the height from the previous day.

36. The population of Gates Mills in 2000 was 2,874. The growth rate is 2.4% per year and a net migration (number of people that leave) of 25 people. Write a recursive formula that would give the population of Gates Mills based on the population from the previous year.

**The box plots below represent the time spent by students of different grades while traveling to school from home. Use these box plots to answer questions 37-41.**

37. Which grade’s students had the smallest IQR?

A) Grade 1 B) Grade 2

C) Grade 3 D) Grade 4

38. Which grade’s distribution is skewed right?

A) Grade 1 B) Grade 2

C) Grade 3 D) Grade 4

39. Which grade’s distribution has the largest median?

A) Grade 1 B) Grade 2

C) Grade 3 D) Grade 4

40. If all students start traveling to school at 9:40AM and school starts at 9:45AM, which is the only grade that will have some students reach school on time?

A) Grade 1 B) Grade 2

C) Grade 3 D) Grade 4

41. For grade 1, what percent of students spend between 10 and 20 minutes traveling?

A) 0% B) 25%

C) 50% D) 75%

1. A peculiar giant mythical turtle is found in Vietnam. The turtle currently weighs 20 lbs and its weight increases by 10% every week.
2. Complete the table below.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Week** | 0 | 1 | 2 | 3 | 4 | 5 | 6 |
| **Weight(Lbs)** | 20 |   |   |   |   |   |   |

1. Which of the following scatterplots could be a plot of the (*week, weight*) data for the first several weeks? **Support your reasoning.**
2. Write a recursive formula that could be used to calculate the weight of the turtle for any week from the weight in the previous week.

1. Write an explicit equation that could be used to calculate the weight of the turtle for any number of weeks *x*.
2. What is the weight of the turtle after 20 weeks? **Show your work!!**
3. If the giant mythical turtle evolves into a whale when it reaches 1,000 lbs, how many weeks will it take for the turtle found in Vietnam to evolve into a whale?
4. The data below gives the average annual salary for the NBA since the year 1980.
5. ![[image]]()Make a scatterplot of this data.
6. Does the data appear more linear or exponential? Use your calculator to find the appropriate regression equation.Round to the nearest thousandth!
7. Use your equation to estimate the average annual salary for an NBA player in the year 2013. **Remember, your answer will be in thousands of dollars!**
8. In what year did the average annual salary reach approximately $8 million (represented as 8000 thousands of dollars)?

44. Find the equation of the line that is parallel to  and passes through the point (5, 8) in slope intercept form.

45. Find the equation of the line that is perpendicular to  and passes through the point (6, -3) in point-slope form.

46. Find the measure of the indicated angle. 47. Find the measure of angle *TUS*.

48. Could a triangle be formed with the following side lengths?

a. 7, 5, 4 b. 9, 6, 5 c. 3, 6, 2

49. Two sides of a triangle are given. Find the range of possible measures for the third side.

a. 9, 5, b. 5, 8,

50. Solve for *x*.

a. b.

**Find the midpoint of the line segments with the given endpoints.**

51. (–5, 8) & (3, 10)

52. (–23, –14) & (42, –9)

**Use the information given to find the missing endpoint of the following line segments.**

53. Given one endpoint is (7, –2) and the midpoint is (2, 4):

54. Given one endpoint is (–15, –4) and the midpoint is (2.5, –8):

**Find the distance between the following coordinates.**

55. (–5, 8) & (3, 10)

56. (–23, –14) & (42, –9)

**Use the information given to find the value of *z*.**

57. The distance between (*z*, 22) and (–11, –50) is 78.

58. Find the area and perimeter of the figure below.

59. Prove that the figure **is or is not** a *parallelogram*.

60. Prove that the figure *ABCD* **is or is not** a *rectangle*. 