

MATH PRACTICE TEST

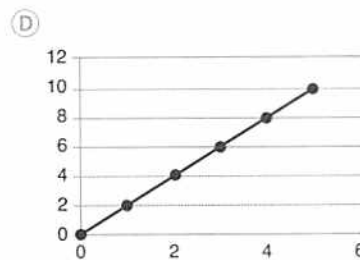
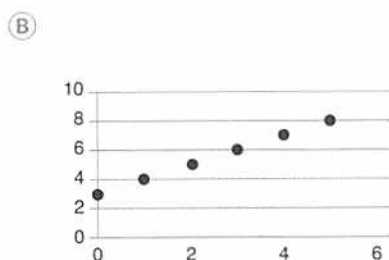
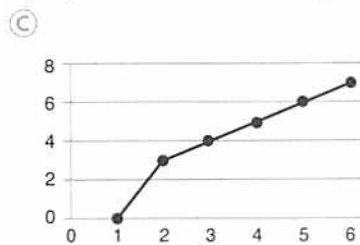
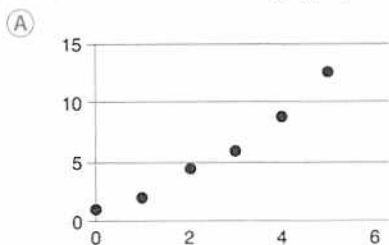
My Name: _____

Today's Date: _____

1. Andrew needs to install new programs onto multiple computers at his job. He estimates that he installed 6 programs onto a computer in 2 hours and 18 minutes. Which rate can he use to help him plan how long it will take to install all the programs he has onto all the computers he has on his list?

- (A) 23 minutes per program
- (B) 6 programs in 2.3 hours
- (C) 2.3 programs per 1 hour
- (D) 2.3 programs per 1 minute

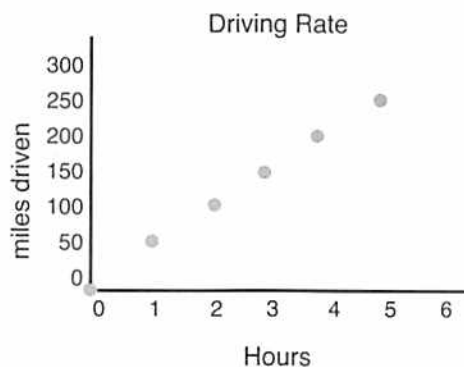
2. Which of the following graphs represents a proportional relationship?



3. On average, Richard is able to plow 4 driveways in 1 hour and 45 minutes. Which equation can be used to calculate the number of driveways, d , Richard can plow in a certain amount of minutes, m ?

- (A) $26.25m = d$
- (B) $.03m = d$
- (C) $m = 26.25d$
- (D) $m = .03d$

The graph below was made by a truck driver to help predict the total miles he will drive if he maintains a constant speed. Refer to the graph for questions 4–7.



4. Describe what the point (3, 150) represents in the context of the graph.
5. What is the constant of proportionality represented by the graph? Explain the method that you used to determine this.
6. Where is the constant of proportionality located on the graph?
7. Write an equation that can represent the relationship between miles and hours as shown in the graph.

8. Which of the following charts represents a proportional relationship?

(A)

0	4
1	8
2	12
3	16
4	20

(C)

0	2
1	6
2	10
3	14
4	18

(B)

0	0
1	3
2	6
3	9
4	12

(D)

0	4
1	5
2	6
3	7
4	8

9. Which of the following equations would directly result in finding the discounted price, P , if there is a 30% off sale when you buy a kayak, k ?

- (A) $P = 0.70k$
 (B) $P = 0.30k$
 (C) $P = k - 0.70$
 (D) $P = k - 0.30$

10. What is the original price of a television for which the total cost with 7% tax is \$481.50?

- (A) \$33.70
 (B) \$474.50
 (C) \$450.00
 (D) \$515.21

11. Chris's spelling scores went from a 75 to an 87. Which of the following represents the percent of increase in Chris's scores?

- (A) 12%
 (B) 13%
 (C) 14%
 (D) 16%

12. Determine the monthly payments that Theresa will have to pay when she borrows \$12,000 for 4 years at a 5.6% interest rate to buy her first car. Use the simple interest formula $I = prt$ to help.

13. Perform the given operations without a calculator:

$-9 + -7 = \underline{\hspace{2cm}}$

$1 - 6 = \underline{\hspace{2cm}}$

$18 - -9 = \underline{\hspace{2cm}}$

$-6 + 15 = \underline{\hspace{2cm}}$

$3 - 27 = \underline{\hspace{2cm}}$

$-10 - -8 = \underline{\hspace{2cm}}$

$-20 + -8 - -50 + 18 = \underline{\hspace{2cm}}$

$-32 - 8 - 7 = \underline{\hspace{2cm}}$

14. Perform the given operations without a calculator:

$-38 \cdot -50 = \underline{\hspace{2cm}}$

$(-122)(24) = \underline{\hspace{2cm}}$

$(-88) \div (-4) = \underline{\hspace{2cm}}$

$\frac{-115}{5} = \underline{\hspace{2cm}}$

15. Which of the following is the answer to $\frac{-70}{0}$?

- (A) -70
- (B) 0
- (C) Undefined
- (D) 70

16. Which expression is equivalent to $-3(y - 10)$?

- (A) $3y - 10$
- (B) $-3y - 10$
- (C) $-3y + 30$
- (D) $-3y - 30$

17. Which expression is the simplest form of $-x(9 - 8)$?

- (A) $-9x + 8x$
- (B) $9x - 8x$
- (C) x
- (D) $-x$

18. Bella calculated that one out of three babysitters helped with homework. Without using a calculator, what percent of the babysitters did not help with homework?

19. Which of the following expressions is equivalent to $7x - 10x - 5$?
- (A) $-8x$
(B) $-3x - 5$
(C) $17x - 5$
(D) $3x - 5$
20. $4x + 24$ is equivalent to all of the following expressions except:
- (A) $4(x + 6)$
(B) $x + 12 + 3x + 12$
(C) $2(2x + 12)$
(D) $10x - 6x - 20 + 4$
21. Find the difference of $(5n^2 + 3n - 1) - (2n^2 + 8n - 20)$.
22. Troy wanted to buy 3 apples, a , and 4 papayas, p , at the farmer's market and not spend more than \$12. Which of the following inequalities represents this situation?
- (A) $3a + 4p > 12$
(B) $4a + 3p < 12$
(C) $3a + 4p \leq 12$
(D) $4a + 3p \geq 12$
23. Write an equation that represents the values in the chart below:

x	y
-2	-7
-1	-3
0	1
1	5
2	9

24. Solve the following equation:

$$-\frac{1}{2}x - 3.75 = -10\frac{1}{4}$$

25. Solve the following equation:

$$-2(-5c - 2) + 3c = 55$$

26. Jim has at most \$150 to buy chlorine to take care of his pool this summer. He has a \$10 coupon and each bucket, b , of chlorine costs \$7.50.

Part A. Write an inequality to represent how many total buckets of chlorine he can buy.

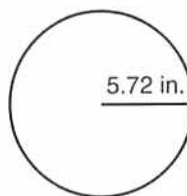
Part B. Solve the inequality to determine how many buckets of chlorine he can buy.

Part C. Draw the solution on a number line.

27. A T-shirt graphic arts company is creating a design to be silkscreened onto shirts. The design is an upside down equilateral triangle that says "Chocolate Pi makes me Irrational!" The perimeter of the triangle has as many numbers of pi that can wrap around it and when measured results in a perimeter of 6.9 centimeters. Determine the length of one side of the triangle when the design is increased by 40% to fit on the shirts.
28. Which of the following measurements result in one unique triangle?
- (A) 85° , 60° , 35°
 - (B) Length = 1.0 cm, Width = 2.5 cm, Height = 10.2 cm
 - (C) 40° angle, 2.2 cm side, 4 cm side
 - (D) 60° angle, 40° angle, 5.3 cm side included between the 2 given angles
29. Which two-dimensional figure results from a pentagonal pyramid being sliced vertically and perpendicular to the base?
- (A) Triangle
 - (B) Square
 - (C) Circle
 - (D) Pentagon

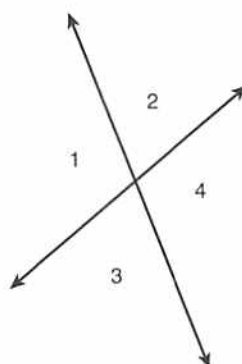
30. What is the circumference of the given circle?

- (A) 5.72π in.
- (B) 11.44π in.
- (C) 2.86π in.
- (D) 33π in.



31. The circumference of a circle is 21π . Determine the area of the circle to the nearest hundredth.

Use the following diagram, which shows intersecting lines, to complete questions 32 and 33.



32. What type of angle relationship is between angle 2 and angle 3?

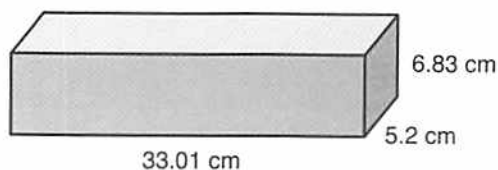
33. Angle 2 is represented by $3x + 5$ and Angle 3 is $4x - 10$.

Part A. Write an equation that would determine the measure of each angle.

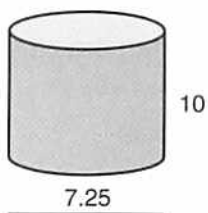
Part B. Solve the equation for x .

Part C. Determine the measure of angle 2 and angle 3.

34. What is the volume of the rectangular prism shown below?



- (A) 1172.38316 cm^2
 - (B) 15.04 cm^2
 - (C) 15.04 cm^3
 - (D) 1172.38316 cm^3
35. What is the surface area of the cylinder shown below?



- (A) 273.3 units^2
 - (B) 310.3 units^2
 - (C) 501.1 units^2
 - (D) 412.8 units^2
36. Which of the following methods of sampling would provide the most reliable data to analyze?
- (A) Use a computer to randomly generate numbers that represent people.
 - (B) Ask every fourth person you see at the park.
 - (C) Mail a survey to taxpayers in your town.
 - (D) Provide an online questionnaire for a month.

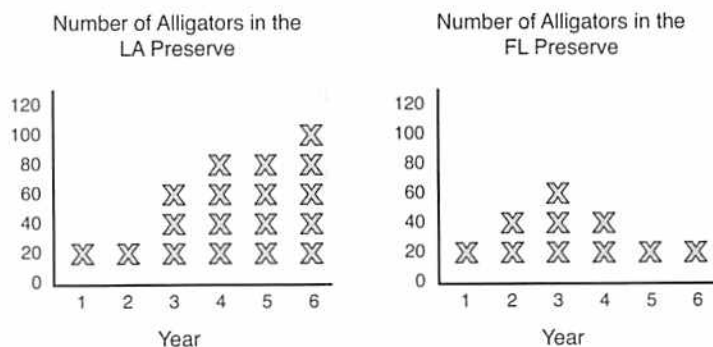
Andy wanted to analyze the different colored cars that people have bought in the last few months and his data is recorded below. Use the table for questions 37 and 38.

	Red	White	Black	Blue
Used Cars R Us	9	3	1	1
Papa's Chevrolet	10	0	0	7
JR's Auto Center	1	6	3	2

37. Which of the following inferences can be concluded from his data?
- (A) On average there are more black cars sold than blue.
 - (B) About 47% of the cars sold are red.
 - (C) Most car dealers sell used cars.
 - (D) JR's Auto Center sold more cars than the other two dealers combined.
38. To best improve his analysis, Andy should
- (A) recount the cars sold at each dealer.
 - (B) sample a different car dealer.
 - (C) only count the first five cars sold each month.
 - (D) sample more car dealers for a longer amount of time.

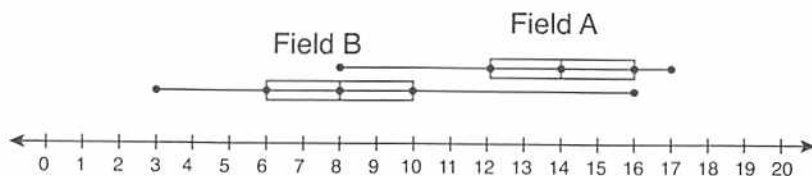
Use the dot plot for question 39.

$$\bar{x} = 20$$



39. What conclusion can be drawn from these dot plots?
- (A) The range in the LA alligator population is larger than the range in the FL alligator population.
 - (B) The mean LA alligator population is larger than the mean FL alligator population.
 - (C) In year 2 there were the same amount of alligators in both FL and LA.
 - (D) Both graphs are symmetric.

Use the double-box plot which show the ages of children at two different soccer fields to answer questions 40 and 41.



40. By analyzing the graphs, which of the following conclusions could be made?
- (A) There are more children at Field B.
 - (B) 50% of the children at Field B are younger than 10 and older than 6.
 - (C) Both fields have children that range in age from 0 to 20.
 - (D) Most children are older at Field B than at Field A.
41. By analyzing the graphs, which of the following conclusions cannot be made?
- (A) Field A's minimum age is the same as Field B's median age.
 - (B) Field A has an outlier in its data and Field B most likely does not.
 - (C) Field B is skewed right and Field A is symmetric.
 - (D) The age of children at Field B is more evenly distributed as the distribution of the age of children in Field A has more variability.

Use the double stem and leaf plot which show the home runs hit by players on two different baseball teams to answer the questions.

High Hitters	Stem	Sunny Sluggers
2, 3	0	2, 4, 5, 8, 9, 9
0, 8, 9	1	0, 0, 1, 3, 3
3, 6, 7, 7, 8	2	0, 1, 1, 2
0, 1, 2, 3, 6, 8, 9	3	1, 5, 5

42. Which conclusions can be made about the two data sets?
- (A) Hitters outperform the Sluggers in home runs.
 - (B) Sluggers hit more home runs than the Hitters.
 - (C) Sluggers have a larger range than the Hitters.
 - (D) Sluggers have an equal range with the Hitters.
43. Determine which team has the larger median. Explain your process.

44. Bill is rolling a regular 6-sided number cube and wanted to predict the number of times he should get a 3 or 4. He decided to roll it 120 times. Determine how many 3's or 4's he should get.
45. On average, Chuck recorded that 9.5% of the time it is raining when he wakes up at 7 A.M. If Chuck records the weather at 7 A.M. for 186 mornings, how many mornings should it be raining?

Use the following information to answer questions 46 and 47. Aaron and Jenny were arguing about whose turn it was to wash the dishes and, to decide who should wash the dishes, Aaron suggested they flip a coin. Jenny thought her brother may try to trick her and thought it was an unfair coin.

46. **Part A.** Determine the theoretical probability of flipping heads.

Part B. Determine a method to test if the coin is fair or unfair and describe the method of testing.

47. **Part A.** If Aaron and Jenny were to flip the coin 20 times, determine the expected amount of times that they should get heads.

Part B. When Aaron and Jenny flipped it 20 times, heads occurred 12 times. Compare their results to the expected results from Part A. Based on your answer, would you tell Aaron and Jenny that the coin was fair or unfair? Explain your reasoning.

48. Melissa has six different fruits that she could eat, and she can't make up her mind about which one she wants. Which of the following probability models would you recommend that she use to make her decision?
- (A) Flipping a fair coin
 - (B) Rolling a fair 6-sided die
 - (C) Picking one of 4 marbles out of a bag
 - (D) Spinning a spinner that is equally marked A, B, C, D, E
49. Which of the following is the probability of rolling a number less than 4 on a regular 8-sided number cube and then a number greater than 4 on a regular 6-sided number cube?
- (A) $\frac{6}{36}$
 - (B) $\frac{6}{14}$
 - (C) $\frac{1}{8}$
 - (D) $\frac{5}{48}$
50. There are 7 pieces of candy in a jar. 4 are blue, 2 are purple, and 1 is green. You reach in for one piece of candy to eat, and then you take out another piece. What is the probability of drawing a blue candy and then a purple candy if the first candy you pick is not replaced?