

End-of-Year Test

1. At 6 A.M. the temperature was -8°C . At noon the temperature was 3°C . What was the change of temperature between 6 A.M. and noon?

A -11°C C 5°C
 B -5°C D 11°C

2. What is the quotient of $-18 \div \left(-\frac{1}{6}\right)$?

A -108 C 3
 B -3 D 108

3. What is true about the relationship between miles and gallons?

gallons	2	5	6	9
miles	46	115	138	207

- A There is no relationship between miles and gallons.
 B There is a proportional relationship between miles and gallons.
 C There is a 1 to 23 relationship between miles and gallons.
 D There is a 20 to 1 relationship between miles and gallons.

4. Which decimal is equivalent to $\frac{7}{20}$?

A 0.35 C 2.85
 B 1.34 D 7.20

5. At the farmers' market, you can buy 3 melons for \$10.50, 6 melons for \$21, or 9 melons for \$31.50. What is the constant of proportionality for buying melons?

A 3.50 C 10.50
 B 5.75 D 63.00

6. Jen makes necklaces by stringing different color beads. Each necklace is 18 inches long. Jen has an 86-inch length of beaded string. How many necklaces can she make?

A 4 C 7
 B 5 D 8

7. The ground temperature at ABC airport is 5°F . For every 500 feet gained in altitude, the temperature outside the plane drops 1.6°F . At an altitude of 3,000 feet, what will be the likely outside temperature?

A -9.6°F C -3.4°F
 B -4.6°F D 4.6°F

8. Terry skated 2 miles in $\frac{1}{2}$ hour. Which of the following represents the unit rate that Terry skates?

A $\frac{1}{2}$ mi/h C $\left(\frac{1}{2} \div 2\right)$ mi/h

B $\left(2 \div \frac{1}{2}\right)$ mi/h D 2 mi/h

9. Simplify $\frac{1}{2}(4a + b) - \frac{1}{4}(4a + b)$.

A a C $2a + \frac{1}{4}b$

B $a + \frac{1}{4}b$ D $2a - b$

10. Four croissants cost \$2.60. How much will it cost to purchase 7 croissants?

A \$4.55 C \$9.60
 B \$5.20 D \$10.77

11. A photo of a painting measures 13 inches by 17 inches. The scale factor is $\frac{1}{3}$. What size is the painting?

A 4.3 in. \times 5.7 in.
 B 26 in. \times 34 in.
 C 39 in. \times 51 in.
 D 65 in. \times 85 in.

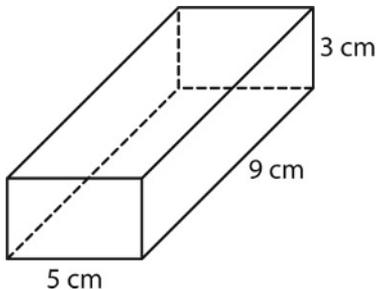
12. Which fraction is equivalent to -0.06 ?

A $-\frac{1}{6}$ C $-\frac{7}{10}$

B $-\frac{3}{5}$ D $-\frac{3}{50}$

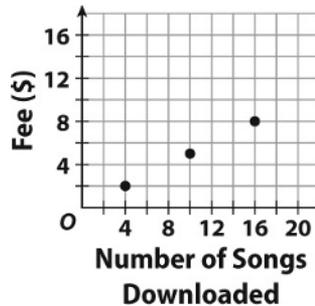
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13. The cost of 50 pounds of pet food is \$117.50. What is the cost for one pound of pet food?
 A \$0.43 C \$23.00
 B \$2.35 D \$235.00
14. On a map, the distance between two cities is 7.3 centimeters. The map scale is 1 cm:50 km. What is the actual distance between the two cities?
 A 365 cm C 400 km
 B 365 km D 500 km
15. Dallas got a raise. His hourly wage was increased from \$9 to \$10.25? What was the percent increase in Dallas's wage to the nearest whole percent?
 A 10% C 14%
 B 12% D 125%
16. What is the volume of the rectangular prism to the nearest cubic centimeter?

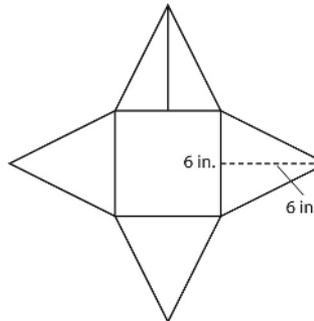


- A 68 cm^3 C 81 cm^3
 B 75 cm^3 D 135 cm^3
17. The experimental probability of seeing a hawk at the Avian Viewing Center on any given day is 20%. If Jun visits the center 240 days, on about how many days can she expect to see a hawk?
 A 24 days C 96 days
 B 48 days D 192 days
18. The circumference of a circle is 28π meters. What is its radius?
 A 7 m C 21 m
 B 14 m D 28 m

19. The graph shows the relationship between fees charged for downloading songs from a website and the number of songs downloaded. Which equation represents the relationship?



- A $y = 0.25x$ C $y = 0.75x$
 B $y = 0.50x$ D $y = 5x$
20. Based on the net shown below, what is the surface area of the pyramid to the nearest square inch?



- A 63 in^2 C 81 in^2
 B 72 in^2 D 108 in^2
21. Zack flips a coin and rolls a number cube with sides labeled 1 to 6. What is the probability that he gets heads and a number greater than 4?
 A $\frac{1}{6}$ B $\frac{1}{4}$ C $\frac{1}{3}$ D $\frac{1}{2}$
22. The Healey family drove 192 miles in 4.5 hours. How many miles could they drive at this rate in 3 hours?
 A 64 mi C 128 mi
 B 77 mi D 184 mi

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23. Your school is choosing new school colors. Which group should you ask to get a random sample of student opinion?
- A ten 7th grade students
 - B every tenth student that enters the building in the morning
 - C twenty 1st and 2nd graders
 - D every other student going into the principal's office

24. A rectangle is 8 inches long and 4 inches wide. A similar rectangle is 12 inches long. What is the width of the second rectangle to the nearest inch?

- A 4 in.
- B 6 in.
- C 8 in.
- D 10 in.

25. There are 25 counters in a bag: 6 red, 4 white, 7 blue, and 8 yellow. You choose one counter at random. Which color are you **least** likely to choose?

- A white
- B red
- C blue
- D yellow

26. Which table represents the same linear relationship as the equation $y = 3x + 5$?

A

x	0	1	2	5
y	0	11	14	17

B

x	2	3	4	5
y	1	4	7	10

C

x	2	3	4	5
y	11	14	17	20

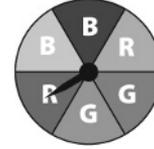
D

x	2	3	4	5
y	15	20	25	30

27. Mae's cat weighs $5\frac{3}{8}$ pounds. What is this weight written as a decimal?

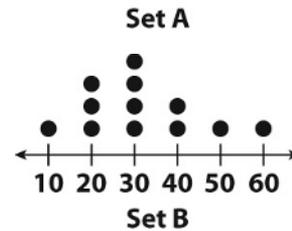
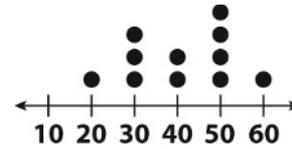
- A 5.125 lb
- B 5.375 lb
- C 5.385 lb
- D 5.625 lb

28. The sections of spinner below are shaded red, blue, or green. What is the probability that the spinner will land on blue **or** green?



- A $\frac{1}{3}$
- B $\frac{1}{2}$
- C $\frac{2}{3}$
- D $\frac{5}{8}$

29. Based on the dot plots below, which of the following is a true statement?



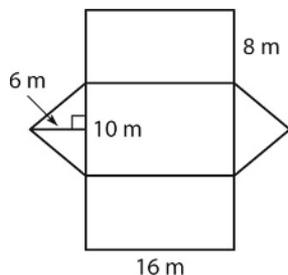
- A Set B has the greater mode.
- B Set A has the lesser mean.
- C Set A is more symmetric than set B.
- D Set B has the greater range.

30. A diner has a breakfast special. A customer can choose scrambled, fried, or poached eggs. The breakfast comes with a side of bacon, sausage, or fruit salad. The customer can choose coffee, tea, or milk. You make a sample space of all the possible combinations. How many different combinations of eggs, side, and drink does a customer have to choose from?

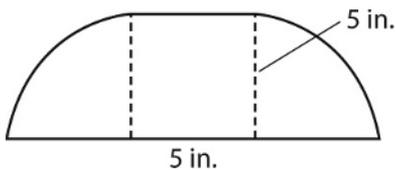
- A 9
- B 12
- C 27
- D 135

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31. The net below is of a triangular prism. What is the surface area of the prism?

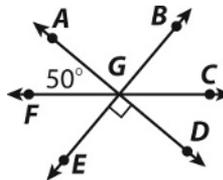


- A 288 m^2 C 318 m^2
 B 300 m^2 D 476 m^2
32. A school has 520 students. Dan surveys a random sample of 50 students and finds that 32 have pet cats. How many students are likely to have pet cats?
- A 180 students C 333 students
 B 320 students D 488 students
33. Which of the following is the solution for the inequality below?
- $$-3x + 2 < 8$$
- A $x > -3$ C $x < -2$
 B $x > -2$ D $x < -3$
34. A bicycle rental company charges a \$12 fee plus \$3 per hour. Which equation represents this linear relationship?
- A $y = 12x - 3$ C $y = 3x - 12$
 B $y = 12x + 3$ D $y = 3x + 12$
35. To the nearest tenth, what is the area of the figure below? Use 3.14 for π .

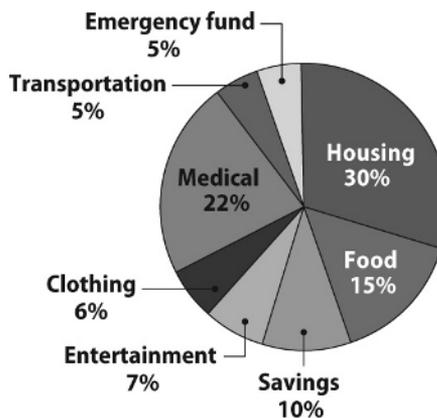


- A 12.5 in^2 C 37.5 in^2
 B 25.0 in^2 D 64.3 in^2

36. What is the measure of $\angle BGC$?



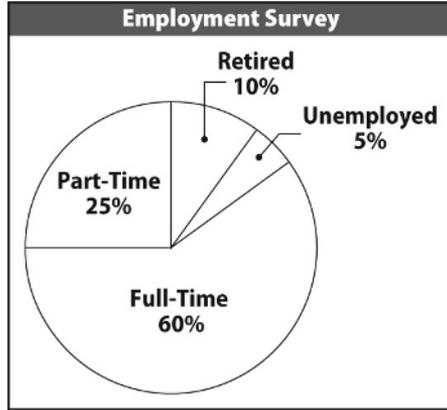
- A 30° C 45°
 B 40° D 50°
37. The Grabo family's monthly budget is shown in the circle graph. The family has a monthly income of \$5,000. How much money do they spend on housing each month?



- A \$250 C \$1,100
 B \$500 D \$1,500
38. A storage trunk is 36 inches wide, 22 inches deep, and 44 inches high. What is the volume of the trunk to the nearest cubic inch?
- A $4,356 \text{ in}^3$ C $34,848 \text{ in}^3$
 B $17,4424 \text{ in}^3$ D $46,656 \text{ in}^3$
39. A circle has a radius of 9 inches. What is the area of the circle?
- A 28.26 in^2
 B 56.52 in^2
 C 127.14 in^2
 D 254.34 in^2

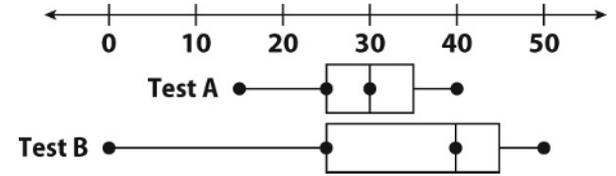
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40. The circle graph shows the results of an employment survey of 800 people. How many of the people surveyed were employed full time?



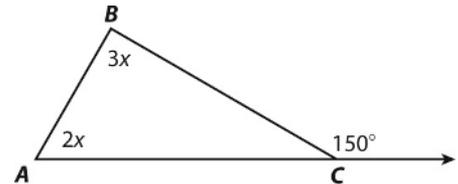
- A 80 people C 320 people
 B 200 people D 480 people
41. Which of the following is a random sample?
- A Members of a polling organization survey city voters about who they expect to be elected mayor.
 B A survey company asks 100 members at a concert who their favorite singer is.
 C Customers at a pizza shop are surveyed about their favorite food.
 D Carlos uses an e-mail survey to find out how many students have computers at home.
42. A 10-inch piece of ribbon is 25.4 centimeters long. How long will a 36-inch piece of ribbon be to the nearest hundredth of a centimeter?
- A 14.17 cm C 141.73 cm
 B 91.44 cm D 914.40 cm
43. One circle has a diameter of 10 inches. A second circle has a diameter that is twice the diameter of the first circle. What is the ratio of the area of the smaller circle to the larger circle?
- A 1:2 B 1:3.14 C 1:4 D 1:8

Use the box plot for 44–45.



44. What is the difference between the medians for Test A and Test B?
- A 10 C 20
 B 15 D 30
45. Which statement is true based on the box plots?
- A Test A had the greater range of scores.
 B More students did better on Test A than on Test B.
 C The interquartile range for Test B is greater than for Test A.
 D One half of the students on each test got 25 or fewer questions correct.

Use the figure for 46–47.



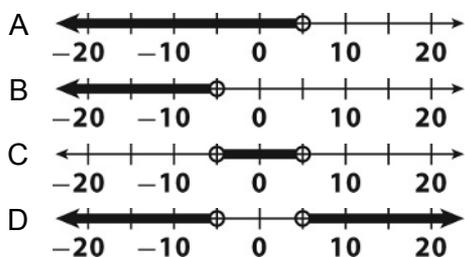
46. What is the measure of $\angle BAC$?
- A 30° C 60°
 B 45° D 75°
47. Which of the following is **not** true?
- A $2x + 3x = 150$ C $3x - 2x = 30$
 B $2x + 3x + 30 = 180$ D $2x + 3x \geq 180$
48. Which equation represents the data shown in the table below?

Cost (y)	5	10	15	20
Gallon (x)	2	4	6	8

- A $y = 2x + 1$ C $y = 2.5x$
 B $y = 3x - 1$ D $y = 2.5x + 1$

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49. Which number line represents the solution to the inequality $4x + 20 < 40$?



50. Three stores have the same mp3 player for sale. The regular price of the player is \$50. Store A is offering the player on sale at 15% off the regular price. Store B is offering a \$10 coupon to be deducted from the regular price. Store C is offering a rebate of \$7.50 to purchasers. Which store is offering the mp3 player at the lowest cost?

- A Store A
- B Store B
- C Store C
- D Store A and Store C

51. In a circle of any size, what ratio does pi (π) represent?

- A the ratio of the radius to the diameter
- B the ratio of the circumference to the diameter
- C the ratio of the circumference to the radius
- D the ratio of the circumference to the area

52. The Gleason family has a monthly budget of \$4,500. Mr. Gleason has fulltime job and takes home \$900 each week. Mrs. Gleason works part-time and brings home \$9 for every hour she works. How many hours per month must Mrs. Gleason work to make sure that she and Mr. Gleason have met their monthly budget?

- A 10 h
- B 25 h
- C 50 h
- D 100 h

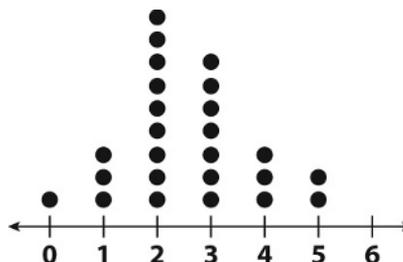
53. Jana has a bag of marbles. Without looking, she removes one marble from the bag, records the color, and replaces it. She repeats this process 50 times and records the results in the table.

Color	Frequency
Red	11
Blue	14
Green	9
Yellow	16

What is the probability that Jana will pick a blue marble on her fifty-first time?

- A $\frac{9}{50}$
- B $\frac{11}{50}$
- C $\frac{7}{25}$
- D $\frac{8}{25}$

54. Mills Middle School has 250 students. A random sample of 25 students were asked how many TVs they have at home. The results are shown in the dot plot below.



Which of the following is a qualitative statement that is reasonable based on the data?

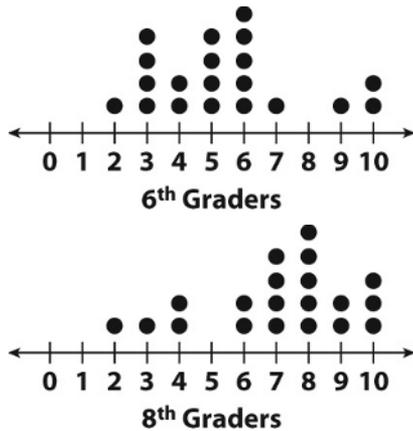
- A The fewest number of TVs at home is 1.
- B Most students have 2 or fewer TVs at home.
- C Most students have 3 or more TVs at home.
- D The mean number of TVs students have at home is 2.

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55. Alim buys 2 T-shirts for \$9.50 each, a 3-pack of socks for \$7.95, and a pair of shoes for \$49.95. The sales tax is 6%. To the nearest cent, what is the total cost of Alim's purchases?

56. The probability of spinning an even number is 40%. What is the probability of **not** spinning an even number, written as a decimal?

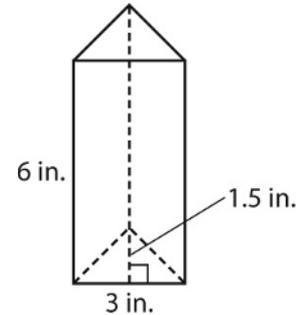
57. Tanya took a random survey of 20 sixth graders and 20 eighth graders. She asked how many hours a week each played video games. Her data is shown in the two dot plots below.



To the nearest tenth, what is the difference between the mean number of hours that 6th graders play video games and the mean number of hours that 8th graders play video games?

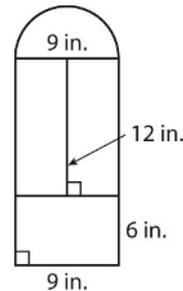
58. A hockey player scores a goal on 35% of her attempts. Out of her next 20 attempts, how many times can you expect the player to score a goal?

59. To the nearest tenth, what is the volume in cubic inches of the triangular prism below?



60. Bea's uncle said that if you subtract 15 from 3 times his age, you would get 60. Bea wrote this equation: $3x - 15 = 60$. How old is Bea's uncle?

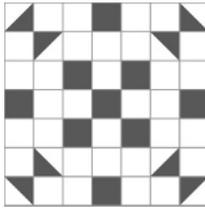
61. To the nearest hundredth, what is the area in square inches of the figure below? Use 3.14 for π .



62. Jenna has \$50 to spend at a local crafts fair. The entrance price for the fair is \$10. At a pottery stand, Jenna finds some cups that she likes that are \$4.50 each. What is the maximum number of cups that Jenna can buy?

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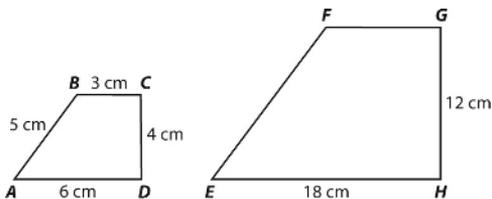
63. A 7 ft-by-7 ft rug is shown below. A coin is tossed onto the rug randomly. What is the probability that the coin will land on black? Write your answer as a decimal rounded to the nearest hundredth.



64. On a road map, the distance from New York City to Albany is 3 inches. The map scale is 1 in.:50 mi. How many miles is the actual distance between the two cities?

65. Joanne's total score for a round of darts was -42 . She had thrown 6 darts and scored the same on each throw. How many points did Joanne score on each throw?

66. The quadrilaterals below are similar. What is the length of \overline{FG} ?

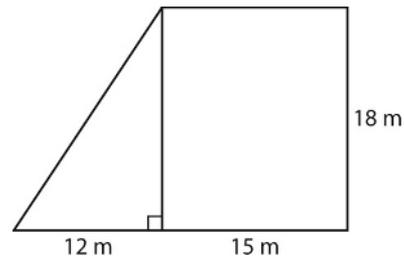


67. According to the Royal Canadian Mint Act, a 50-cent Canadian coin must have a diameter of 27.13 millimeters. To the nearest hundredth, what is the circumference of this coin in millimeters?

68. LaToya bought a new sofa for \$2,900. She is entitled to an 11% rebate. How many dollars will the sofa cost after the rebate?

69. In 5 years, twice a puppy's current age will be equal to or greater than 15. What is the least integer that satisfies the inequality $2x + 5 \geq 15$?

70. To the nearest square meter, what is the area of the figure below?



71. The Philippine Trench in the Pacific Ocean is 10.05 kilometers deep. The Brazil Basin in the Atlantic Ocean is 6.12 kilometers deep. To the nearest hundredth of a kilometer, how many kilometers deeper than the Brazil Basin is the Philippine Trench?

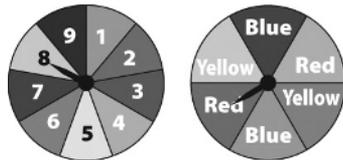
72. On a scale drawing, the image of an alligator is 7 inches long. The scale factor is $\frac{1}{25}$. What is the actual length of the alligator in inches?

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73. Nauru and Gibraltar are the two smallest countries in the world. The area of Nauru is about 3.28 times the area of Gibraltar. The area of Gibraltar is 2.5 square miles. To the nearest tenth, what is the area of Nauru in square miles?
- _____

74. There are 3,280.84 feet in a kilometer. There are 5,280 feet in a mile. To the nearest hundredth, how many kilometers are in a mile?
- _____

75. A building has 9 floors. Each floor has 3 apartments. Omar made the spinners as a probability model for randomly choosing one apartment. Omar spins both the spinners below. What is the probability that the chosen apartment will be blue and above the 5th floor? Write your answer as a decimal rounded to the nearest hundredth.



76. Each hour, the temperature dropped by $3\frac{1}{2}$ degrees. What was the change in temperature in $2\frac{1}{2}$ hours?
- _____

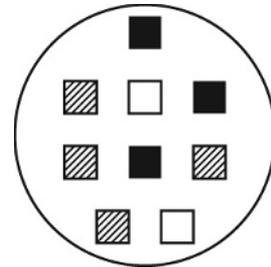
77. One triangle has side lengths of 5 inches, 12 inches, and 13 inches. The side lengths of a second triangle are 15 inches, 36 inches, and 39 inches. What is the constant of proportionality between the two triangles?
- _____

78. A supermarket is having a sale on canned foods. The sale includes 12 cans of soup for \$10.65. What is the unit price per can of soup to the nearest cent?
- _____

79. Beth says the graph below shows today's temperatures in degrees Celsius. What is the greatest temperature that is a solution to the inequality shown below?



80. A larger circle contains white, striped, and black squares in the same ratio as those shown in the circle below. The larger circle contains 126 squares. How many of the squares are white? Write and solve a proportion to solve the problem.



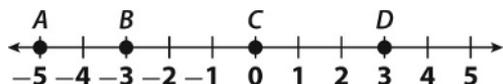
81. A rectangular prism is 10 inches long, 6 inches wide, and 4 inches high. What is the surface area of this prism in square inches?
- _____

82. What is the value of the expression below?

$$-3\left(-\frac{1}{6}\right)(-2)(2) \div \left(-\frac{1}{4}\right)$$

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83. Four students put their game scores on the number line below. Which pair of students have a combined score of 0?



84. Malorie wants to leave a 15% tip for the server at a restaurant. Which expression does **not** show how she can determine how much to leave if t is the total bill?

$0.15t$ $t \div 0.15$ $0.1t + 0.05t$

85. Sam slices a rectangular prism with a plane parallel to the base. Describe the relationship between the two-dimensional shape (the cross section) that is sliced and the base of the prism.

86. What is the probability of flipping two coins and both landing heads? Give your answer as a decimal.

87. You have three straws that are all the same length. Draw a picture of the triangle you can form with those straws. Tell what kind of triangle you drew.

88. At a school carnival you pick a ball from two different containers. Each container has balls marked A, B, and C. Make a sample space that shows all the possible outcomes. Tell how many possible outcomes there are.

89. A company knows that 30% of their customers who come to the store will check out the merchandise and then order it on-line because it is cheaper. The company wants to know the probability that it will take at least 3 customers to find one who shops on-line. How could the company find out this information?

90. Three students simplified the expression:

$$2x - 3(y - 2x) + (-5)(-2y).$$

Their answers are below.

Amber: $-4x + 7y$

Butch: $4x + 7y$

Carl: $8x + 7y$

Tell who is correct. Explain the error the other students made.
