

Name: _____

Pre-Algebra Part 2 Final Exam

Directions: Answer the questions below. Make sure to show your work and justify all your answers.

1. Boston terriers weigh up to 25 pounds. Suppose a puppy of this breed weighs 15 pounds. Write and solve an inequality to show how much more this dog could probably weigh.

(SHOW WORK)

2. Colleen plans to print x pictures from her camera at a drug store. The expression $\$0.2x$ represents the cost of developing the pictures if she is not a member of the store's photography club. If she is a member, then the total cost is given by $\$0.15x + \10 . How much more will Colleen pay by not being a member if she develops 350 pictures?

(SHOW WORK)

3. Marco drove 75 miles in $1\frac{2}{3}$ hours. How many miles can he drive in 1 hour?

(SHOW WORK)

4. Woodland Mound Park sells annual visitor passes for \$12.50. Last year the park raised \$53,500 in annual visitor pass sales. How many annual visitor passes were sold?

(SHOW WORK)

5. The child's physical density is being measured by the displacement method. A child of 50 pounds is placed in a tub filled with water, and the water that comes out of the tub goes into another small tub that measures 40 cm long, 30 cm wide, and 60 cm deep. The water level in the small tub is 18 cm high. Find the density of a child in gm/cm^3 to the nearest hundredth.

(Hint: density = mass/volume; 1 pound = 454 grams)

(SHOW WORK)

6. Benjamin has to wear a uniform to school. His uniform is made up of tan or blue pants and a blue or white collared shirt. Benjamin has 2 pair of blue pants, 2 pair of tan pants, 3 white shirts, and 2 blue shirts. How many combinations can be made with the clothes Benjamin has to choose from? What is the probability that he will wear his favorite combination, tan pants and a white shirt?

(SHOW WORK)

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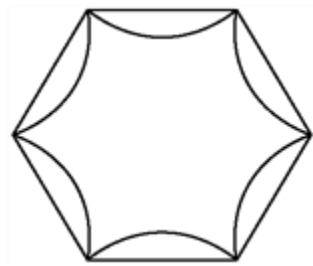
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Directions: Answer the questions below. Make sure to show your work and justify all your answers.
Use function notation and solve for the situation.

7. Greg washes cars on Saturdays at his dad's car dealership. His dad pays him \$50 plus \$5 for each car that he washes. Greg washed 11 cars last Saturday. Use function notation to write an equation that gives the total amount Greg earns as a function of the number of cars he washes. Use the equation to find how much he earned last Saturday.

(SHOW WORK)

8. Jenny drew a figure in art class. Does it have rotational symmetry? If yes, what is the angle of rotation.



Write and solve the system of equations for the situation.

9. The cost of 2 bottles of water and 3 bags of pretzels is \$7.05. The cost of a bag of pretzels is \$1.35. Write a system of equations to represent this situation. Solve and explain what the answer means.

(SHOW WORK)

10. Rectangle $PQRS$ has vertices $P(1, 4)$, $Q(6, 4)$, $R(6, 1)$, and $S(1, 1)$. Without graphing, find the new coordinates of the vertices of the rectangle after a reflection over the x -axis and then another reflection over the y -axis.

(SHOW WORK)

11. Maggie graphed the image of a 90° counterclockwise rotation about vertex A of $\triangle ABC$. Coordinates B and C of $\triangle ABC$ are $(2, 6)$ and $(4, 3)$ and coordinates B' and C' of it's image are $(-2, 2)$ and $(1, 4)$. What is the coordinate of vertex A .

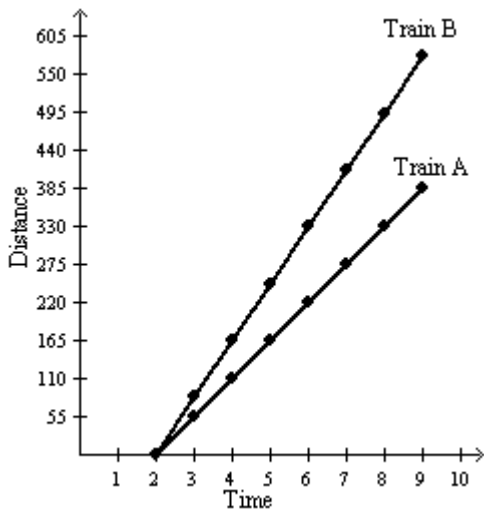
(EXPLAIN WORK)

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Directions: Answer the questions below. Make sure to show your work and justify all your answers.

12. Train A and Train B leave the station at 2 P.M. The graph below shows the distance covered by the two trains. Compare the speeds of the two trains.

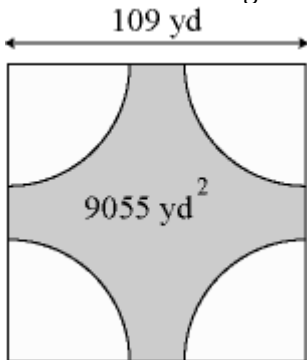


(SHOW WORK)

13. The Nolansky family has saved \$360 as a down payment for a new computer. If x is the monthly payment for one year, the expression $12x + \$360$ represents the total cost of the computer. Factor this expression.

14. Alex earns \$7.50 per hour by working after school. He should have at least \$60 for buying a video game. Write an inequality that shows to find hours must he work to buy a video game.

15. A playground is in the shape of a square with each side equal to 109 yards. It has skating rinks in the shape of the quadrants of a circle at each corner. If the area of the remaining field is 9055, find the radius of each skating rink. Also, find the cost of cementing the skating rinks at \$2.50 per square yards. Use $\pi = 3.14$.



(SHOW WORK)

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16. A company collected funds for charity from employees. The amount donated by some employees on the first day is as follows:

\$10, \$20, \$15, \$100, \$10, \$15, \$10

Which measure of central tendency best represents the data? Justify your selection and then find the measure of central tendency.

(SHOW WORK)

17. Julie has \$80 in her savings account and plans to save \$ x each month for 8 months. The expression $8x + \$80$ represents the total amount in the account after 8 months. Factor this expression.

18. Aaron bought a new television that has a 92 in. $\times$ 76 in. screen. It has a feature that splits the screen to allow him to watch 4 channels at once. What is the scale factor and size for each channel when this feature is turned on?

(SHOW WORK)

19. Jessica's Spanish test scores are 98, 74, 88, 83, 91, and 85. Find the range, median, first and third quartiles, and interquartile range of her scores. Use the measures of variation to describe the data.

(SHOW WORK)

20. A half-filled cylindrical water tank has a water level of 20 feet high. The tank can hold 6000 cubic feet of water. Find the diameter of the tank in feet to the nearest tenth.

(SHOW WORK)