

Algebra Summer Work - Show all work!

1. A contractor has built 8 new homes in the past 6 months. If her rate of building remains the same, write an equation that can be used to find n , the number of homes she will build in a 3-year period.
2. A cylinder has a height of 6 rainbows and a radius of 2 rainbows. What is the volume of the cylinder?
3. A cone is 5 swans wide and 6 swans tall. What is the volume of the cone?
4. Point $T(2, 3)$ is rotated 90 deg about the origin. What are the coordinates of T' ?
5. Find the missing leg length of a right triangle with hypotenuse 11.6 ft and one leg 8.4 ft.
6. Find the length of the hypotenuse of a right triangle with legs 18 in. and $\sqrt{76}$ in.
7. Find the slope between the points $(1, 1)$ and $(-2, 2)$.
8. Parking at a parking meter costs \$0.25 for 20 minutes. Write and solve an equation to figure out how many quarters a person needs in order to park for 3 hours.
9. Jesse had \$800 in her bank account on Monday. She used her debit card to make a \$300 purchase on Tuesday and a \$600 purchase on Wednesday. What is her account balance on Thursday?
10. What is the sum of the measures of the interior angles of an octagon?
11. What is the solution of the equation $x^3 = 216$?
12. How many dollars can you save on your grocery bill if you have 4 coupons, each for \$1 off, and 2 coupons, each for \$2 off?
13. A diving board is 4 ft above a pool that is 15 ft deep. The total vertical distance of a person's dive is 10 ft. How many feet below the surface of the water did the person dive?
14. Leana had \$50.00 before she went shopping. She bought three books that all cost the same price, and a hat for \$18.99, including tax. After shopping, she had \$7.04 left. How much was each book?

15. Which has a greater volume: a cone with a radius 2 cm and height 6 cm, or a cone with height 2 cm and radius 6 cm? Explain.

16. Two friends want to save \$400 each. One friend starts with \$60 and walks dogs for \$8 per hour. The other friend starts with nothing but earns \$10 per hour mowing lawns. Write and solve two equations to find the number of hours each friend will have to work.

17. Sasha made sandwiches for the guests at a birthday party. She bought bread for \$3.29 per loaf, turkey for \$7.99 per pound, and a jar of mayonnaise. The total cost, not including tax, was \$26.15. If Sasha bought two loaves of bread and two pounds of turkey, what was the cost of the jar of mayonnaise? Justify.

18. Simplify $-20 - (-5) \cdot (-2^2)$

19. Simplify $(\frac{-1}{4})^3$

20. Simplify $-|-25|$

21. Simplify $\sqrt{\frac{16}{25}}$

22. Is the ordered pair $(2, -5)$ a solution to the equation $4 + 3x = -2y$?

23. Simplify $5x^2 - x^2$

24. Is the set of positive integers the same as the set of nonnegative integers? Explain.