

# Summer Review and Practice for Accelerated Math I

1. Use these sets for the following questions (a - d):

$$A = \{1, 2, 5, 8, 9\} \quad B = \{2, 4, 6, 8, 10\} \quad C = \{ \}$$

a.  $A \cup B$

b.  $B \cup C$

c.  $A \cap B$

d.  $A \cap C$

2. Create a Venn diagram using the given sets.

$$A = \{\text{vowels}\}$$

$$B = \{\text{consonants}\}$$

$$C = \{m, a, t, h, r, u, l, e, s\}$$

3. If set  $A = \{1, 2, 3, 4, 5, 6, 7, 8\}$  and  $B = \{2, 4, 6, 8, 10\}$ , what is  $A \cap B$ ?
4. What is  $A \cup B$  if  $A = \{p, y, t, h, a, g, o, r, a, s\}$  and  $B = \{f, a, c, t, o, r\}$ ?
5. Explain why every positive number has two square roots.
6. A ladder is leaned against a wall. The bottom of the ladder is 5 feet from the wall and ladder is 13 feet long. What is the distance from the ground to the top of the ladder?
7. Martin and his aunt are building a deck in the shape of a right triangle for his aunt's house. What would be the length of the longest board if two sides are 15 ft and 20 ft?
8. Solve:  $\sqrt{225}$
9. Estimate the positive square root of  $\sqrt{139}$ .
10. What are all the solutions of  $y^2 = 16$ ?
11. Simplify:  $7(8 + 5k)$
12. Evaluate the expression  $5 + 6r + 5t$ , if  $r = -4$  and  $t = 8$ .

13. Name the property that is shown:  $8 + (2 + y) = (2 + 8) + y$
- commutative property of addition
  - commutative property of multiplication
  - associative property of addition
  - associative property of multiplication
  - distributive property
14. Translate the phrase into an algebraic expression:  
*Four more than twice as many cards*
15. How would you write 0.0000006234 in scientific notation?
16. Simplify:  $\sqrt{6} \cdot \sqrt{10}$
17. Simplify:  $5^{-2} (5^5)$
18. Which of the following is false?
- $g \in \{g, a, s\}$
  - $\{3, 4, 5\} \cup \{2\} = \{2, 3, 4, 5\}$
  - $\{6, 7, 8\} \cap \{4, 5\} = \{5, 6\}$
  - $\{a, b, c\} \subseteq \{\text{letters of the alphabet}\}$
19. What is the best estimate of the square root of 43?
- between 5 & 6
  - between 6 & 7
  - between 7 & 8
  - between 8 & 9
20. Angie used the Pythagorean Theorem to solve for the hypotenuse of a right triangle. The legs had a length of and 4. What was the length of the hypotenuse and is the answer rational or irrational?
- 19, rational
  - 19, irrational
  - $\sqrt{19}$ , rational
  - $\sqrt{19}$ , irrational
21. Translate the following equation to algebraic:  
*Six times the sum of a number and the square root of nine is six.*
22. Simplify:  $-8(-4x + y) + 3(2y - 4x)$ .
23. Evaluate:  $6^2 \cdot 3^{-2} - 2^{-3} + 10^0$
24. An oxygen atom has a mass of  $2.66 \times 10^{-23}$  grams. To express this number in standard notation, in what direction and how far would you move the decimal point?

25. Simplify the expression:  $2\sqrt{3} + \sqrt{9} - \sqrt{27} + 2$
26. Evaluate  $\sqrt{x} + 2^{-2} + \frac{12}{x}$  if  $x = 4$ .
27. If  $n = 3$ , what is the value of the expression:  $n^3 + (-n-2)$ ?
28. What is the supplementary angle measurement of a  $145^\circ$  angle?
29. What name is given to a line that divides another line into halves?
30. What is the slope of the line represented by  $y = 3x - 2$ ?
31. Which set of points satisfy the definition of an indirect proportion?  
a. (1,8), (2,4), (8,1)      b. (2,3), (1,6), (2,4)  
c. (1,4), (4,1), (2,3)      d. (3,3), (2,4), (1,9)
32. A construction company can build 10 houses per year. This means that there is a direct proportion between the number of years that the company builds houses and \_\_\_\_\_.  
a. the number of houses produced in 10 years  
b. the amount of profit received by the company  
c. the total number of houses built  
d. the number of houses built in 3 months
33. Which statement describes the equation  $y = x + 10$ ?  
a. The equation is a direct proportion and an indirect proportion  
b. The equation is neither a direct or indirect proportion  
c. The equation is a direct proportion only  
d. The equation is an indirect proportion only
34. If a printer takes an image on 16 mm film and projects it onto photo paper making the image 120 mm, what is the scale factor (in simplest form)?
35. What shape will be formed by a cross section perpendicular to the base of a cube?

36. If two triangles are similar then what information can we gather?
37. If two cross sections were taken perpendicular to the base of a triangular prism, what would the relationship between the two figures be?  
a. similar    b. congruent    c. no relationship    d. not enough information
38.  $\triangle STU$  is similar to  $\triangle XYZ$ . What is the relationship between  $\angle STU$  and  $\angle XYZ$ ?  
a. The measure of  $\angle STU$  is half the measure of  $\angle XYZ$ .  
b. The measure of  $\angle STU$  is equal to the measure of  $\angle XYZ$ .  
c. The measure of  $\angle STU$  is double the measure of  $\angle XYZ$ .  
d.  $\angle STU$  and  $\angle XYZ$  are complementary
39. A drawing of a deck has a scale of 1 inch equal to 5 feet. The actual deck is 18 feet long. How long is the deck in the scale drawing?
40. The ratio of side lengths of two squares is  $\frac{5}{4}$ . What is the ratio of their corresponding areas?
41. Donnie wants to find the height of the flagpole. He holds a yardstick perpendicular to the ground (36 in.) and it casts a 12 ft. shadow. The flagpole casts a 18 foot shadow. What is the approximate height of the flagpole?
42. If a cylinder is cut by a plane, which cross-section is not possible?  
a. circle    b. rectangle    c. triangle    d. oval
43. A cone is cut by a plane. Which of the following could be the shape of the cross-section formed?  
a. square    b. triangle    c. trapezoid    d. parallelogram
46. A fitness club offers 2 basketball classes. The morning class has 4 people and the attendance is increasing by 3 people each week. The afternoon class started with 8 people but only 2 people are joining each week. At this rate, when will the two classes have the same number of people?
45. When you solve a system of equations, how do you find the answer?

46. Tom gets \$5 for allowance each week. Each day his mother asks him to do a chore, if he does it he gets \$3. Which of the following is the equation that represents the amount of money Tom makes each week?
- a.  $y = 5x + 3$       b.  $y = 3x + 5$       c.  $3y = x + 5$       d.  $5y = x + 3$
47. Solve for x:  $51 = |2x - 11|$
48. For the equation,  $x = 4$ , what is the slope?
49. Ms. Smith bought dry erase boards and markers for her class. When she bought 12 dry erase boards and 20 markers, the cost was \$44. When she bought 5 dry erase boards and 30 markers, the cost was \$40. What is the price of 1 marker?
50. What is the slope of the line perpendicular to the line passing through the points  $(-1, 3)$  and  $(4, 2)$ ?