Chattooga High School

Algebra Screening Test

This assessment consists of 27 problems. There are 21 selected response items worth three points each and six constructed response items worth 37 points for a total of 100 points.

Directions (read aloud to students):

Today you will be taking the Screening test for Algebra. It is made up of selected response items (multiple choice) and constructed response items (word problems).

There are several important things to remember:

- **Read each question carefully and think about the answer choices given.**
- **Answer all questions on your answer sheet. You may use scratch paper and calculator on all questions, but your final answer must be marked on the answer document.**
- **For each selected response item, choose the one best answer and fill in the circle for your answer on your answer sheet.**
- **For each constructed response item, show your work neatly in the designated area of the Constructed Response Document.**
- **Be sure the number on your answer document matches the number on the assessment.**
- **Do your very best. This is to make sure you are enrolled in the correct algebra class.**

Are there any questions?

You may begin.

1. Write the fraction for one quarter.
      a. ½   b. ⅓   c. ¼   d. $^1/_{25}$

2. Write 2 ⅓ as a fraction.
      a. 2 ⅓   b. $\frac{6}{3}$ c. $\frac{7}{3}$ d. $\frac{3}{7}$

3. How many hundreds are in 46,278?
      a. 462   b. 278   c. 46   d. 2

4. How many tenths are in 62.1?
      a. 1   b. 21   c. 62   d. 621

5. Write these fractions in order of size, smallest to biggest. $\frac{1}{2}, \frac{1}{7}, \frac{1}{5}$
      a. $\frac{1}{7}, \frac{1}{2}, \frac{1}{5}$ b. $\frac{1}{7}, \frac{1}{5}, \frac{1}{2}$ c. $\frac{1}{2}, \frac{1}{5}, \frac{1}{7}$ d. $\frac{1}{5}, \frac{1}{7}, \frac{1}{2}$

6. One morning the temperature was -12°C. At 3:00 the temperature was 14°C. What was the change in temperature?
      a. -2°C   b. 2°C   c. -26°C   d. 26°C

7. ½ (16)   a. 16   b. 8   c. 4   d. 2

8. ¾ (24)   a. 18   b. 16   c. 12   d. 6

9. $\sqrt{16}$ a. 4   b. 5   c. 16   d. 256

10. $\sqrt[3]{27}$ a. 9   b. 6   c. 3   d. 5.2

11. If $x^2 = 25$, x=   a. 4   b. 5   c. 25   d. 625

12. Estimate $\sqrt{12}$. Show your work in the designated area of the constructed response answer document.

13. Given a right triangle with sides 6 and 8, find the length of the hypotenuse.
      a. 10   b. 14   c. 100   d. Cannot be determined

14. $g^2 g^6$ a. g^4 b. g^8 c. g^{12} d. g

15. $\frac{m^5 m^{-8}}{m^{-2} m^3} =$ a. m^4 b. m^8 c. $\frac{1}{m^2}$ d. $\frac{1}{m^4}$

16. $(3x + 2) + (4x + 3)$ a. 7x + 5   b. $7x^2 + 5$ c. 5x + 7x   d. 12 x

17. 3(2x - 4) a. 5x - 7   b. 6x - 12   c. 6x - 7   d. 9x

18. Are $\frac{2}{4}$ and $\frac{10}{20}$ equivalent? Why or why not?

      a. No, $\frac{2}{4}$ is bigger.

      b. No, $\frac{10}{20}$ is bigger

      c. Yes, they both equal ¼.

      d. Yes, they both equal ½.

19. Six of 24 students were absent during 3rd period. First period has 15 students and five were absent. Which class has the lowest absentee rate? Justify your answer.

20. State the reason for each step in the solution below. Use the designated space on the constructed response answer document.

Equation	Reason
1. $6x - 2(2x + 4) = 2$	1. Original Equation/Given
2. $6x - 4x - 8 = 2$	2. (A)
3. $2x - 8 = 2$	3. Addition to simplify
4. $2x = 10$	4. (B)
5. $x = 5$	5. (C)

21. The formula for the perimeter of a rectangle is $P = 2(l + w)$. Solve for w.

   a. $w = \frac{2P}{l}$ b. $w = \frac{P}{2} + l$ c. $w = \frac{P}{2} - l$ d. $w = 2P - l$

22. A manicure costs $20. Designs may be added for $2 each. Which function below could be used to represent this situation?

   a. $f(x) = 20x + 2x$ b. $f(x) = 20 + 2$ c. $f(x) = 20x + 2$ d. $f(x) = 2x + 20$

23. Given the functions below, compare the rates of change.

x	g(x)
-4	-8
-2	-4
2	4
4	8

$f(x) = ½ x + 2$

The rate of change of function f(x) is _____ than the rate of change of the function g(x).
  a.   greater than   b. less than   c. the same   d. cannot be determined

24. Evaluate $f(x) = \frac{-1}{3}x + 5$ if $x = 9$.

    a. 32   b. 8   c. 2   d. cannot be determined

25. Use the designated area of the constructed response answer document to classify each of the equations as linear or non-linear. If non-linear, state why it is non-linear. If linear, state the slope and y-intercept.

    (a) $y = 3x^2 - 4$

    (b) $y = \frac{1}{2}x + 5$

    (c) $y = \frac{-3}{x} + 2$

26. The contents of the fuel tank of a car can be modeled by the function $g(x) = -0.04x + 15$, where x is the number of miles driven and $g(x)$ represents the amount of fuel remaining in the tank in gallons. Use the designated area on the constructed response answer document to answer each of the following.

    (a) What does 15 represent?
    (b) What does -0.04 represent?
    (c) How much fuel remains when the owner has driven 200 miles?
    (d) What is the y-intercept of this function?
    (e) What is the slope of the graph of this function?

27. Jack and Jill improved their hill by planting ivy and roses. Jack spent $64 on four pots of ivy and eight roses. Jill purchased seven pots of ivy and eight roses for $76. How much did each pot of ivy and each rose cost? Use the designated space on the constructed response answer document to define the variables, write a system of equations and solve the problem.

Constructed Response Answer Document. Show all work neatly.

12. Show work to estimate $\sqrt{12}$.

19. Show work and justify your answer.

20. A.

   B.

   C.

25. A.

   B.

   C.

26. A.

   B.

   C.

   D.

   E.

27.