

**CENTRAL HIGH  
MATHEMATICS DEPARTMENT**

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Dear Parent:

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The questions listed below represent exam questions from assessments given at Central High to Algebra I students. These questions also represent some of the skills that must be mastered in order for a student to qualify for advanced placement.

**PROBLEMS**

24. Solve the equation

$$2x^2 + 7 = 15x$$

2. Factor completely

$$40x^3 + 34x^2 - 20x$$

3. Solve

$$5(2 - 3x)^3 - 4 - 3(4x + 7)$$

4. Simplify

$$7x - 3(5x + 2) - 6(7 + 2x)$$

5. Solve the system

$$4x + 3y = 1$$

$$6x - 2y = 21$$

6. Write the equation of the line that passes through the points  $(6, -10)$  and  $(-3, 11)$ .

7. What is the equation of the vertical line that passes through  $(5, 8)$ ?

8. Are these two lines parallel, perpendicular, or neither?

$$4x = 5y + 10 \text{ and } 15x - 36 = -12y$$

9. Multiply  $(2x + 3)(4x^2 - 9x - 13)$

10. Simplify

$$(3x - 10)(4x + 7) + (2x + 5)(6x + 8)$$

11. Simplify and rewrite with positive exponents

$$\frac{9x^{-6}y^{11}}{21x^{-4}y^{-5}}$$

12. Find the missing factor

$$(3x^3y^2)^2( ? )(4xy^4) = (-180x^{11}y^{13})$$

13. Simplify  $\frac{3x^2 - 19x - 14}{6x^2 - 11x - 10}$

14. Subtract  $(14x^2 - x + 3)$  from  $(3x^2 - 5x - 2)$

15. From the line  $5x - 3y = 11$ , find the slope,  $x$  and  $y$  intercepts.

16. Subtract  $1 - \frac{x + y}{x - y}$

17. Solve for  $x$ .  $3bx - 5c = 7bx + 4c$

18. Solve  $-5|3x - 5| = -10$

19. Solve  $\frac{3}{x + 2} = \frac{x - 8}{13}$

20. The school sold 300 tickets for a school play and collected a total of \$1150. Student tickets cost \$3.00 and adult tickets cost \$5.00 How many students attended the play?

21. The difference of two numbers is 29. If five times the smaller is subtracted from twice the larger, the result will be one. What is the larger number?

22. In the school election, votes were cast for Sam, Mary, and Bill in the ratio of 4:3:2. If a total of 2178 votes were cast, how many votes did Mary receive?

23. A class has 24 boys and 16 girls. On a test the class mean was 75. The mean of the girls' score was 72. What was the mean of the boys' scores?

24. The measure of the second angle of a triangle is seven more than twice the measure of the first. The third angle is fifteen less than the first. Find the measures of all of the angles.

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