

**Name:**

# **Common Core Algebra II Strategies Packet!**

**Mr. Schlansky**

### Multiple Choice Strategy with Variables

If variables in the problems and answers:

10 STO  $\rightarrow$  X, 15 STO  $\rightarrow$  Y

Type in original problem, 2<sup>nd</sup> Math (Test), =, type in each solution. 1 is equivalent, 0 is not equivalent. Make sure to try all four choices.

1. The expression  $\frac{6x^3 + 17x^2 + 10x + 2}{2x + 3}$  equals

1)  $3x^2 + 4x - 1 + \frac{5}{2x + 3}$

3)  $6x^2 - x + 13 - \frac{37}{2x + 3}$

2)  $6x^2 + 8x - 2 + \frac{5}{2x + 3}$

4)  $3x^2 + 13x + \frac{49}{2} + \frac{151}{2x + 3}$

2. The expression  $\frac{4x^3 + 5x + 10}{2x + 3}$  is equivalent to

1)  $2x^2 + 3x - 7 + \frac{31}{2x + 3}$

3)  $2x^2 + 2.5x + 5 + \frac{15}{2x + 3}$

2)  $2x^2 - 3x + 7 - \frac{11}{2x + 3}$

4)  $2x^2 - 2.5x - 5 - \frac{20}{2x + 3}$

3. What is the completely factored form of  $k^4 - 4k^2 + 8k^3 - 32k + 12k^2 - 48$ ?

1)  $(k - 2)(k - 2)(k + 3)(k + 4)$

3)  $(k + 2)(k - 2)(k + 3)(k + 4)$

2)  $(k - 2)(k - 2)(k + 6)(k + 2)$

4)  $(k + 2)(k - 2)(k + 6)(k + 2)$

4. Factored completely, the expression  $6x - x^3 - x^2$  is equivalent to

1)  $x(x + 3)(x - 2)$

2)  $x(x - 3)(x + 2)$

3)  $-x(x - 3)(x + 2)$

4)  $-x(x + 3)(x - 2)$

5. When factored completely, the expression  $3x^3 - 5x^2 - 48x + 80$  is equivalent to

1)  $(x^2 - 16)(3x - 5)$

2)  $(x^2 + 16)(3x - 5)(3x + 5)$

3)  $(x + 4)(x - 4)(3x - 5)$

4)  $(x + 4)(x - 4)(3x - 5)(3x - 5)$

6. The expression  $\frac{a^2b^{-3}}{a^{-4}b^2}$  is equivalent to

1)  $\frac{a^6}{b^5}$

3)  $\frac{a^2}{b}$

2)  $\frac{b^5}{a^6}$

4)  $a^{-2}b^{-1}$

7. Which expression is equivalent to  $\frac{x^{-1}y^2}{x^2y^{-4}}$ ?

- 1)  $\frac{x}{y^2}$       2)  $\frac{x^3}{y^6}$       3)  $\frac{y^2}{x}$       4)  $\frac{y^6}{x^3}$

8. What is the product of  $\sqrt[3]{4a^2b^4}$  and  $\sqrt[3]{16a^3b^2}$ ?

- 1)  $4ab^2\sqrt[3]{a^2}$   
2)  $4a^2b^3\sqrt[3]{a}$   
3)  $8ab^2\sqrt[3]{a^2}$   
4)  $8a^2b^3\sqrt[3]{a}$

9. The expression  $\sqrt[4]{16x^2y^7}$  is equivalent to

- 1)  $2x^{\frac{1}{2}}y^{\frac{7}{4}}$       3)  $4x^{\frac{1}{2}}y^{\frac{7}{4}}$   
2)  $2x^8y^{28}$       4)  $4x^8y^{28}$

10. For positive values of  $x$ , which expression is equivalent to  $\sqrt{16x^2} \cdot x^{\frac{2}{3}} + \sqrt[3]{8x^5}$ ?

- 1)  $6\sqrt[3]{x^5}$       3)  $4\sqrt[3]{x^2} + 2\sqrt[3]{x^5}$   
2)  $6\sqrt[5]{x^3}$       4)  $4\sqrt{x^3} + 2\sqrt[5]{x^3}$

11. Written in simplest form,  $\frac{c^2 - d^2}{d^2 + cd - 2c^2}$  where  $c \neq d$ , is equivalent to

- 1)  $\frac{c+d}{d+2c}$       3)  $\frac{-c-d}{d+2c}$   
2)  $\frac{c-d}{d+2c}$       4)  $\frac{-c+d}{d+2c}$

12. The expression  $\frac{-3x^2 - 5x + 2}{x^3 + 2x^2}$  can be rewritten as

- 1)  $\frac{-3x-3}{x^2+2x}$       3)  $-3x^{-1} + 1$   
2)  $\frac{-3x-1}{x^2}$       4)  $-3x^{-1} + x^{-2}$

### Multiple Choice Strategy with Equations

-Store each potential answer ( \_\_\_\_\_ STO → X)

-Type in equation

-1 is correct, 0 is incorrect

\*Be sure to check all potential answers as most equations have multiple answers

1. The solution set of the equation  $\sqrt{x+3} = 3-x$  is

- 1) {1}
- 2) {0}
- 3) {1, 6}
- 4) {2, 3}

2. What is the solution set for the equation  $\sqrt{5x+29} = x+3$ ?

- 1) {4}
- 2) {-5}
- 3) {4, 5}
- 4) {-5, 4}

3. The solution set of  $\sqrt{3x+16} = x+2$  is

- 1) {-3, 4}
- 2) {-4, 3}
- 3) {3}
- 4) {-4}

4. The solution set of the equation  $\sqrt{2x-4} = x-2$  is

- 1) {-2, -4}
- 2) {2, 4}
- 3) {4}
- 4) { }

5. What is the solution set of the equation  $\frac{30}{x^2-9} + 1 = \frac{5}{x-3}$ ?

- 1) {2, 3}
- 2) {2}
- 3) {3}
- 4) { }

6. What is the solution set of the equation  $\frac{3x+25}{x+7} - 5 = \frac{3}{x}$ ?

- 1)  $\left\{\frac{3}{2}, 7\right\}$
- 2)  $\left\{\frac{7}{2}, -3\right\}$
- 3)  $\left\{-\frac{3}{2}, 7\right\}$
- 4)  $\left\{-\frac{7}{2}, -3\right\}$

7. The solution set for the equation  $\sqrt{56-x} = x$  is

- 1)  $\{-8, 7\}$
- 2)  $\{-7, 8\}$
- 3)  $\{7\}$
- 4)  $\{\}$

8. The zeros for  $f(x) = x^4 - 4x^3 - 9x^2 + 36x$  are

- 1)  $\{0, \pm 3, 4\}$
- 2)  $\{0, 3, 4\}$
- 3)  $\{0, \pm 3, -4\}$
- 4)  $\{0, 3, -4\}$

9. Which values of the following is a solution of the following system of equations?

- 1) (0, 4)
- 2) (2, 0)  $y = 3x - 6$
- 3) (4, 6)  $y = x^2 - x - 6$
- 4) (2, -1)

10. Which ordered pair is a solution of the system of equations shown below?

- 1) (2, 3)  $x + y = 5$
- 2) (5, 0)
- 3) (-5, 10)  $(x + 3)^2 + (y - 3)^2 = 53$
- 4) (-4, 9)

11. Which ordered pair is in the solution set of the system of equations shown below?

- 1) (2, 6)  $y^2 - x^2 + 32 = 0$
- 2) (3, 1)  $3y - x = 0$
- 3) (-1, -3)
- 4) (-6, -2)

### Open Response Equations

- 1) Type in left hand side into Y1
- 2) Type in right hand side into Y2
- 3) Adjust window (if necessary)
- 4) 2<sup>nd</sup> Trace (Calc), 5: Intersect
- 5) The solution is the x value of the intersection
- 6) You must still check!!!

\*You may want to divide both sides at the beginning to make the values smaller

1. Solve  $x^3 + 5x^2 = 4x + 20$ .

2. Solve the equation  $2x^3 - x^2 - 8x + 4 = 0$  for all values of  $x$ .

3. Solve algebraically for all values of  $x$ :  $x^4 + 4x^3 + 4x^2 = -16x$

4. Find the zeros for  $p(x) = x^3 + x^2 - 4x - 4$ .

5. Solve for all values of  $x$ :  $\sqrt{x-5} + x = 7$

6. What is the solution set for the equation  $\sqrt{56-x} = x$ ?

7. What is the solution set for the equation  $\sqrt{5x+29} = x+3$ ?

8. Solve algebraically for  $x$ :  $\sqrt{x^2+x-1} + 11x = 7x+3$

9. Solve for  $x$ :  $\frac{1}{x} - \frac{1}{3} = -\frac{1}{3x}$

10. What is the solution set of the equation  $\frac{30}{x^2-9} + 1 = \frac{5}{x-3}$ ?
11. What is the solution set of the equation  $\frac{3x+25}{x+7} - 5 = \frac{3}{x}$ ?
12. What is the solution, if any, of the equation  $\frac{2}{x+3} - \frac{3}{4-x} = \frac{2x-2}{x^2-x-12}$ ?
13. Solve for x and round your answer to the nearest hundredth:  $4^x - 5 = 12$
14. Solve for x and round your answer to the nearest hundredth:  $8 + 2(4)^{x-5} = 14$
15. Solve for x and round your answer to the nearest thousandth:  $1 - 2(3)^{2x} = -5$
16. Solve  $e^{4x} = 12$  for x, rounded to the *nearest hundredth*.
17. Solve for x:  $x^{\frac{2}{3}} = 4$
18. Solve for x:  $x^{\frac{4}{3}} - 11 = 5$
19. Solve for x:  $4x^{\frac{2}{3}} - 16 = 20$
20. Solve for x and round your answer to the *nearest hundredth*:  $2x^5 - 4 = 7$