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Common Core Algebra II Strategies Packet!

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Multiple Choice Strategy with Variables

If variables in the problems and answers:

10 STO \rightarrow X, 15 STO \rightarrow Y

Type in original problem, 2nd 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) $(x^2 - 16)(3x - 5)$ | *not factored completely*
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 $\frac{a^2 b^{-3}}{a^{-4} b^2}$ 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 $\sqrt[3]{16a^3b^2}$? Math: 4

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

4 Math: 5

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

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

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

- 1) $\frac{-3x-3}{x^2+2x}$ 2) $\frac{-3x-1}{x^2}$ 3) $-3x^{-1} + 1$ 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} 1 STO → X 1
2) {0}
3) {1, 6} 6 STO → X 0
4) {2, 3}

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

- 1) {4} 4 STO → X 1
2) {-5}
3) {4, 5} 5 STO → X 0
4) {-5, 4} -5 STO → X 0

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

- 1) {-3, 4}
2) {-4, 3} -4 STO → X 0
3) {3} 3 STO → X 1
4) {-4}

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

- 1) {-2, -4}
2) {2, 4} 2 STO → X 1
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} 3 STO → X ERR
2) {2} 2 STO → X 1
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) $\left\{-\frac{7}{2}, -3\right\}$
- $\frac{-7}{2}$ STO $\rightarrow X$ |
 -3 STO $\rightarrow X$ |

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

- 1) $\{-8, 7\}$
 - 2) $\{-7, 8\}$
 - 3) $\{7\}$
 - 4) $\{\}$
- -8 STO $\rightarrow X$ |
 7 STO $\rightarrow X$ |

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) $\{0, 3, -4\}$
- 0 STO $\rightarrow X$
 3 STO $\rightarrow X$
 -3 STO $\rightarrow X$
 4 STO $\rightarrow X$

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

- 1) $(0, 4)$
 - 2) $(2, 0)$
 - 3) $(4, 6)$
 - 4) $(2, -1)$
- $y = 3x - 6$
 4 STO $\rightarrow X$
 6 STO $\rightarrow Y$ |
 $y = x^2 - x - 6$

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

- 1) $(2, 3)$
 - 2) $(5, 0)$
 - 3) $(-5, 10)$
 - 4) $(-4, 9)$
- $x + y = 5$
 -5 STO $\rightarrow X$ |
 10 STO $\rightarrow Y$ |
 $(x + 3)^2 + (y - 3)^2 = 53$

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

- 1) $(2, 6)$
 - 2) $(3, 1)$
 - 3) $(-1, -3)$
 - 4) $(-6, -2)$
- $y^2 - x^2 + 32 = 0$
 $3y - x = 0$
 -6 STO $\rightarrow X$ |
 -2 STO $\rightarrow Y$ |

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) 2nd 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 $x^3 + 5x^2 = 4x + 20$.

**adjust y max*

$$\begin{aligned} Y_1 &= x^3 + 5x^2 & x = -5 \\ Y_2 &= 4x + 20 & x = -2 \quad \text{Intersect} \\ & & x = 2 \end{aligned}$$

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

window's good

$$\begin{aligned} Y_1 &= 2x^3 - x^2 - 8x + 4 & x = -2 \\ Y_2 &= 0 & x = 0.5 \quad \text{Intersect} \\ & & x = 2 \end{aligned}$$

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

**adjust y max*

$$\begin{aligned} Y_1 &= x^4 + 4x^3 + 4x^2 & x = 0 \quad \text{Intersect} \\ Y_2 &= -16x & x = -4 \\ & & x = -4 \end{aligned}$$

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

window's good

$$\begin{aligned} Y_1 &= 0 = x^3 + x^2 - 4x - 4 & x = -2 \\ Y_2 &= x^3 + x^2 - 4x - 4 & x = -1 \quad \text{Intersect} \\ & & x = 2 \end{aligned}$$

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

window's good

$$\begin{aligned} Y_1 &= \sqrt{x-5} + x & x = 6 \quad \text{Intersect} \\ Y_2 &= 7 & x = 7 \end{aligned}$$

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

window's good

$$\begin{aligned} Y_1 &= \sqrt{56-x} & x = 7 \quad \text{Intersect} \\ Y_2 &= x & x = 7 \end{aligned}$$

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

window's good

$$\begin{aligned} Y_1 &= \sqrt{5x+29} & x = 4 \quad \text{Intersect} \\ Y_2 &= x+3 & x = 4 \end{aligned}$$

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

window's good

$$\begin{aligned} Y_1 &= \sqrt{x^2+x-1} + 11x & x = -0.6 \quad \text{Intersect} \\ Y_2 &= 7x+3 & x = -0.6 \end{aligned}$$

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

window's good
hard to see
I would use
ZBox
or
Table

$$\begin{aligned} Y_1 &= \frac{1}{x} - \frac{1}{3} & x = 4 \quad \text{Intersect} \\ Y_2 &= -\frac{1}{3x} & x = 4 \end{aligned}$$

10. What is the solution set of the equation $\frac{30}{x^2-9} + 1 = \frac{5}{x-3}$? $y_1 = \frac{30}{x^2-9} + 1$ $x=2$ Intersect
 window's good $y_2 = \frac{5}{x-3}$

11. What is the solution set of the equation $\frac{3x+25}{x+7} - 5 = \frac{3}{x}$? $y_1 = \frac{3x+25}{x+7} - 5$ $x=-3$
 window's good $y_2 = \frac{3}{x}$ Intersect

12. What is the solution, if any, of the equation $\frac{2}{x+3} - \frac{3}{4-x} = \frac{2x-2}{x^2-x-12}$? $x=-1$
 window's good $y_1 = \frac{2}{x+3} - \frac{3}{4-x}$ $y_2 = \frac{2x-2}{x^2-x-12}$ Intersect

13. Solve for x and round your answer to the nearest hundredth: $4^x - 5 = 12$
 adjust y max $y_1 = 4^x - 5$ $x=2.04$ Intersect
 $y_2 = 12$

14. Solve for x and round your answer to the nearest hundredth: $8 + 2(4)^{x-5} = 14$
 adjust y max $y_1 = 8 + 2(4)^{x-5}$ $x=5.79$
 $y_2 = 14$ Intersect

15. Solve for x and round your answer to the nearest thousandth: $1 - 2(3)^{2x} = -5$
 window's good $y_1 = 1 - 2(3)^{2x}$ $x=.5$ Intersect
 $y_2 = -5$

16. Solve $e^{4x} = 12$ for x, rounded to the nearest hundredth. $y_1 = e^{4x}$ $x=.62$ Intersect
 adjust y max $y_2 = 12$

17. Solve for x: $x^{\frac{2}{3}} = 4$ $y_1 = x^{\frac{2}{3}}$ $x=-8$ Intersect
 window's good $y_2 = 4$ $x=8$ Intersect

18. Solve for x: $x^{\frac{4}{3}} - 11 = 5$ $y_1 = x^{\frac{4}{3}} - 11$ $x=8$ Intersect
 window's good $y_2 = 5$

19. Solve for x: $4x^{\frac{2}{3}} - 16 = 20$ $y_1 = 4x^{\frac{2}{3}} - 16$ $x=-27$ Intersect
 adjust x min and max $y_2 = 20$ $x=27$ Intersect
 and y max

20. Solve for x and round your answer to the nearest hundredth: $2x^5 - 4 = 7$
 window's good $y_1 = 2x^5 - 4$ $x=1.41$ Intersect
 $y_2 = 7$

