

$$① \quad x+3=7$$

$$x+3-3=7-3$$

$$x=4$$

M0410 TEST 4 Step

05/017

①

$$② \quad 9x+4x=78$$

$$13x=78$$

$$\frac{13x}{13} = \frac{78}{13}$$

$$x=6$$

$$③ \quad 4(8x-4)=33x$$

$$32x-16=33x$$

$$32x-16+16=33x+16$$

$$32x=33x+16$$

$$32x-33x=33x+16-33x$$

$$-1x=16$$

$$\frac{-1x}{-1} = \frac{16}{-1}$$

$$x=-16$$

④

$$5x+4=49$$

$$5x+4-4=49-4$$

$$5x=45$$

$$\frac{5x}{5} = \frac{45}{5}$$

$$x=9$$

5

$$9n - 4 = 59$$

$$9n - 4 + 4 = 59 + 4$$

$$9n = 63$$

$$\frac{9n}{9} = \frac{63}{9}$$

$$n = 7$$

2

6

$$-14 = 8x - 6$$

$$-14 + 6 = 8x - 6 + 6$$

$$-8 = 8x$$

$$\frac{-8}{8} = \frac{8x}{8}$$

$$-1 = x$$

7

$$7(8x - 4) = 60x$$

$$56x - 28 = 60x$$

$$56x - 28 + 28 = 60x + 28$$

$$56x = 60x + 28$$

$$56x - 60x = 60x + 28 - 60x$$

$$-4x = 28$$

$$\frac{-4x}{-4} = \frac{28}{-4}$$

$$x = -7$$

3

$$\textcircled{8} \quad 2(5x-2) = 8x$$

$$10x - 4 = 8x$$

$$10x - 4 + 4 = 8x + 4$$

$$10x = 8x + 4$$

$$10x - 8x = \cancel{8x} + 4 - \cancel{8x}$$

$$2x = 4$$

$$\frac{2x}{2} = \frac{4}{2}$$

$$x = 2$$

$$\textcircled{9} \quad 5(y-4) = 7y - 20$$

$$5y - 20 = 7y - 20$$

$$5y - \cancel{20} + \cancel{20} = 7y - \cancel{20} + \cancel{20}$$

$$5y = 7y$$

$$5y - 7y = 7y - 7y$$

$$-2y = 0$$

$$\frac{-2y}{-2} = \frac{0}{-2}$$

$$y = 0$$

$$10. \quad 1.01x + 4.3 = 0.7x + 1.14$$

$$1.01x + \cancel{4.3} - \cancel{4.3} = 0.7x + 1.14 - 4.3$$

$$1.01x = 0.7x - 3.16$$

$$1.01x - 0.7x = \cancel{0.7x} - 3.16 - \cancel{0.7x}$$

$$.4x = -3.16$$

$$\frac{\cancel{.4x}}{\cancel{.4}} = \frac{-3.16}{.4}$$

$$x = -7.9$$

$$11. \quad \frac{5}{6}x + \frac{4}{3} = \frac{2}{3}x \quad \text{LCD} = 6$$

$$\frac{5x}{6}(6) + \frac{4}{3}(6) = \frac{2x}{3}(6)$$

$$5x(1) + 4(2) = 2x(2)$$

$$5x + 8 = 4x$$

$$5x + \cancel{8} - \cancel{8} = 4x - 8$$

$$5x = 4x - 8$$

$$5x - 4x = \cancel{4x} - 8 - \cancel{4x}$$

$$1x = -8$$

$$x = -8$$

$$(12) \quad 9x + 5 - 9x - 5 = 6x - 6x - 3$$

$$0 \neq -3$$

No solution

(5)

$$(13) \quad 2(x+5) = (2x+10)$$

$$2x + 10 = 2x + 10$$

$$2x + 10 - 10 = 2x + 10 - 10$$

$$2x = 2x$$

$$2x - 2x = 2x - 2x$$

$$0 = 0$$

all real numbers

$$(14) \quad A = P + PRT \quad \text{find } T$$

$$A - P = P + PRT - P$$

$$A - P = PRT$$

$$\frac{A - P}{PR} = \frac{PRT}{PR}$$

$$\frac{A - P}{PR} = T$$

15

$$21x + 9 > 3(6x + 4)$$

$$21x + 9 > 18x + 12$$

$$21x + 9 - 9 > 18x + 12 - 9$$

$$21x > 18x + 3$$

$$21x - 18x > 18x + 3 - 18x$$

$$3x > 3$$

$$\frac{3x}{3} > \frac{3}{3}$$

6

$$x > 1$$



$$(1, +\infty)$$

16

Determine if the ordered pair is a solution.

$$-2y + 3x = -15$$

$(5, 0)$
 $x \ y$

$$-2(0) + 3(5) = -15 \quad ?$$

$$0 + 15 = -15 \quad ?$$

$$15 \neq -15$$

No

17) Graph

$$y = 2x + 4$$

$$y = 2(0) + 4$$

$$y = 0 + 4$$

$$y = 4$$

$$y = 2(1) + 4$$

$$y = 2 + 4$$

$$y = 6$$

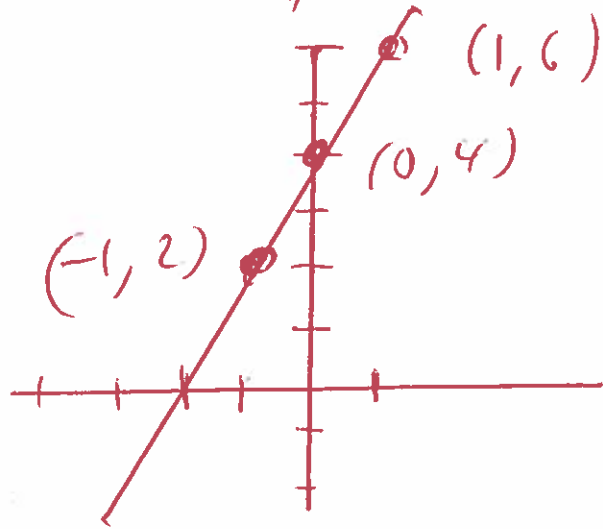
$$y = 2(-1) + 4$$

$$y = -2 + 4$$

$$y = 2$$

X	Y
0	4
1	6
-1	2

76



18) Graph

$$5y - 25x = 10$$

$$5y - 25x + 25x = 10 + 25x$$

$$5y = 10 + 25x$$

$$\frac{5y}{5} = \frac{10}{5} + \frac{25x}{5}$$

$$y = 2 + 5x$$

$$y = 5x + 2$$

Form
 $y = mx + b$

$$y = 5(0) + 2$$

$$y = 0 + 2$$

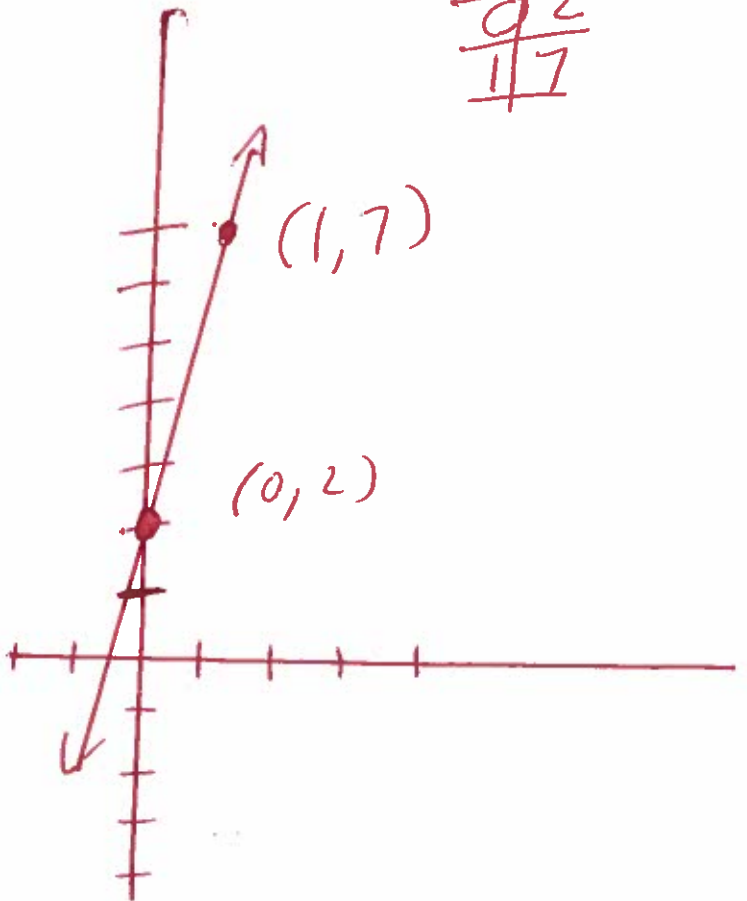
$$y = 2$$

$$y = 5(1) + 2$$

$$y = 5 + 2$$

$$y = 7$$

X	Y
0	2
1	7



19) Find the slope of the line through the points $(8, 5)$ and $(6, 9)$

$$m = \frac{y_1 - y_2}{x_1 - x_2}$$

$$\begin{matrix} (8, 5) & \text{and} & (6, 9) \\ x_1, y_1 & & x_2, y_2 \end{matrix}$$

8.

$$m = \frac{(5) - (9)}{(8) - (6)}$$

$$m = \frac{5 - 9}{8 - 6}$$

$$m = \frac{-4}{2}$$

$$m = -2$$

20) Find the equation of the line
Slope = $m = 2$ and point $(5, 2)$.

$$y - y_1 = m(x - x_1)$$

$$y - (2) = 2(x - (5))$$

$$y - 2 = 2(x - 5)$$

$$y - 2 = 2x - 10$$

$$y - \cancel{x} + 2 = 2x - 10 + 2$$

$$y = 2x - 8$$

21. $f(x) = x^2 + 4x - 3$ find $f(4)$

$$f(4) = (4)^2 + 4(4) - 3$$

$$f(4) = (4)(4) + 4(4) - 3$$

$$f(4) = 16 + 16 - 3$$

$$f(4) = 32 - 3$$

$$f(4) = 29$$

9.

22. Solve

$$-2x + 3y = 2$$

$$-3x + 5y = 2$$

$$(-2x + 3y)(-5) = (2)(-5) \text{ Mult}$$

$$(-3x + 5y)(3) = (2)(3) \text{ Mult}$$

$$10x - 15y = -10$$

$$-9x + 15y = 6$$

$$x = -4$$

$$\frac{3y}{3} = \frac{-6}{3}$$

$$y = -2$$

Subst

$$-2x + 3y = 2$$

$$-2(-4) + 3y = 2$$

$$8 + 3y = 2$$

$$8 + 3y - 8 = 2 - 8$$

$$3y = -6$$

$$(x, y) = (-4, -2)$$

23

$$x+y=7$$

$$\underline{x+y=4}$$

$$(x+y)(-1) = (7)(-1)$$

Mult

$$\underline{(x+y)(1) = (4)(1)}$$

Mult

$$-x-1y = -7$$

$$\underline{1x+1y = 4}$$

$$0 \neq -3$$

NO Solution

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24

$$-2x+2y = -5$$

$$\underline{6x-6y = 15}$$

$$(-2x+2y)(6) = (-5)(6)$$

Mult

$$\underline{(6x-6y)(2) = (15)(2)}$$

Mult

$$-12x+12y = -30$$

$$\underline{12x-12y = 30}$$

$$0 = 0$$

Infinite number of solutions

25. $(6x-1)(x^2-4x+1) =$
 $6x^3 - 24x^2 + 6x - 1x^2 + 4x - 1 =$
 $6x^3 - 25x^2 + 10x - 1 =$

(11)

26. $(3a-7)^2 =$
 $(3a-7)(3a-7) =$
 $9a^2 - 21a - 21a + 49 =$
 $9a^2 - 42a + 49 =$

27. $(x+11)(x-11) =$
 $x^2 - 11x + 11x - 121 =$
 $x^2 - 121 =$

28. $\frac{2^{-7}x^{-5}y^3}{2^{-4}x^{-8}y^6} =$
 $\frac{2^4x^8y^3}{2^7x^5y^6} =$ rewrite $\frac{2^3x^3}{2 \cdot 2 \cdot 2 y^3} =$
 $\frac{x^3}{8y^3} =$
 $\frac{2^{7-4}x^{8-5}y^{6-3}}{2} =$

29. $\frac{x^2 + 9x + 6}{x + 2}$

Long division

$$\begin{array}{r} x+2 \overline{) x^2 + 9x + 6} \\ \underline{-(x^2 + 2x)} \\ 7x + 6 \\ \underline{-(7x + 14)} \\ -8 \text{ rem} \end{array}$$

OR

$$x + 7 - \frac{8}{x + 2}$$

Synthetic division

12.

$$\begin{array}{r|rrr} -2 & 1 & 9 & 6 \\ & & -2 & -14 \\ \hline & & & -8 \text{ rem} \end{array}$$

$$x + 7 + \frac{-8}{x + 2}$$

OR

$$x + 7 - \frac{8}{x + 2}$$

30. Factor GCF

$$20x^4y + 36xy^3 =$$

$$20x^4y^1 + 36x^1y^3 =$$

$$4x^1y^1(5x^3 + 9y^2) =$$

$$4xy(5x^3 + 9y^2) =$$

31 Factor by grouping

$$3xy - 9x + 7y - 21 =$$

$$(3xy - 9x) + (7y - 21) =$$

$$3x(y - 3) + 7(y - 3) =$$

$$(y - 3)(3x + 7) =$$

(3)

32

Factor

$$x^2 - x - 42 =$$

$$(x + 6)(x - 7) =$$

42.1

21.2

6.7

3.14

Possible

33

Factor

$$z^2 - 121 =$$

$$(z)^2 - (11)^2 =$$

$$(z + 11)(z - 11)$$

Formula

$$a^2 - b^2 = (a + b)(a - b)$$