1

M0410 TEST 2 Step
071017

① Determine if $(5,0)$ is a solution

$x \quad y$

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

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

$0+15=-15$?

$15 \neq -15$?

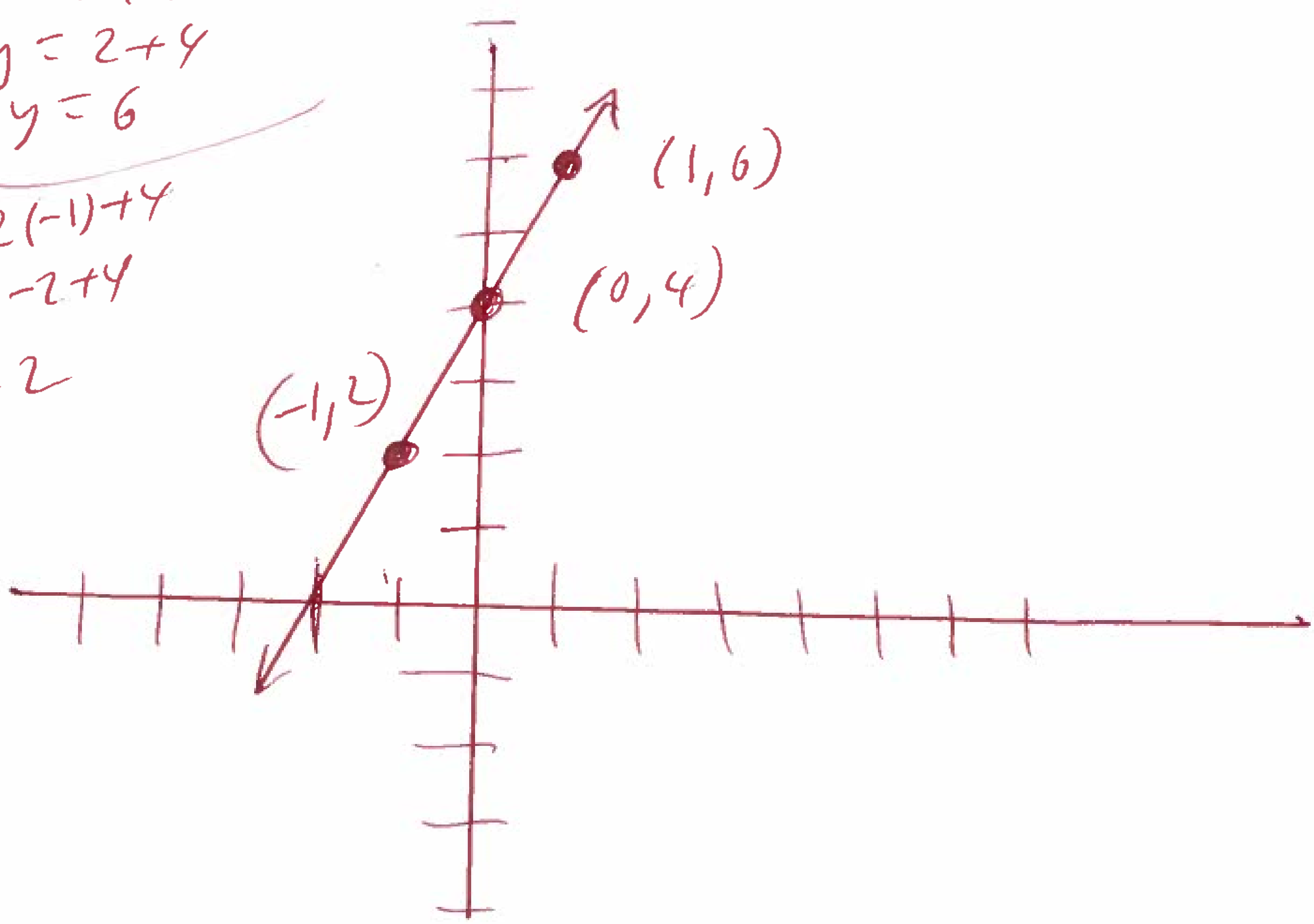
② graph $y=2x+4$

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

$y=2(1)+4$
$y=2+4$
$y=6$

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

x	y
0	4
1	6
-1	2



(3) Graph

$5y - 25x = 10$

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

$5y = 10 + 25x$

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

$y = 2 + 5x$

$y = 5x + 2$

$y = 5(0) + 2$

$y = 0 + 2$

$y = 2$

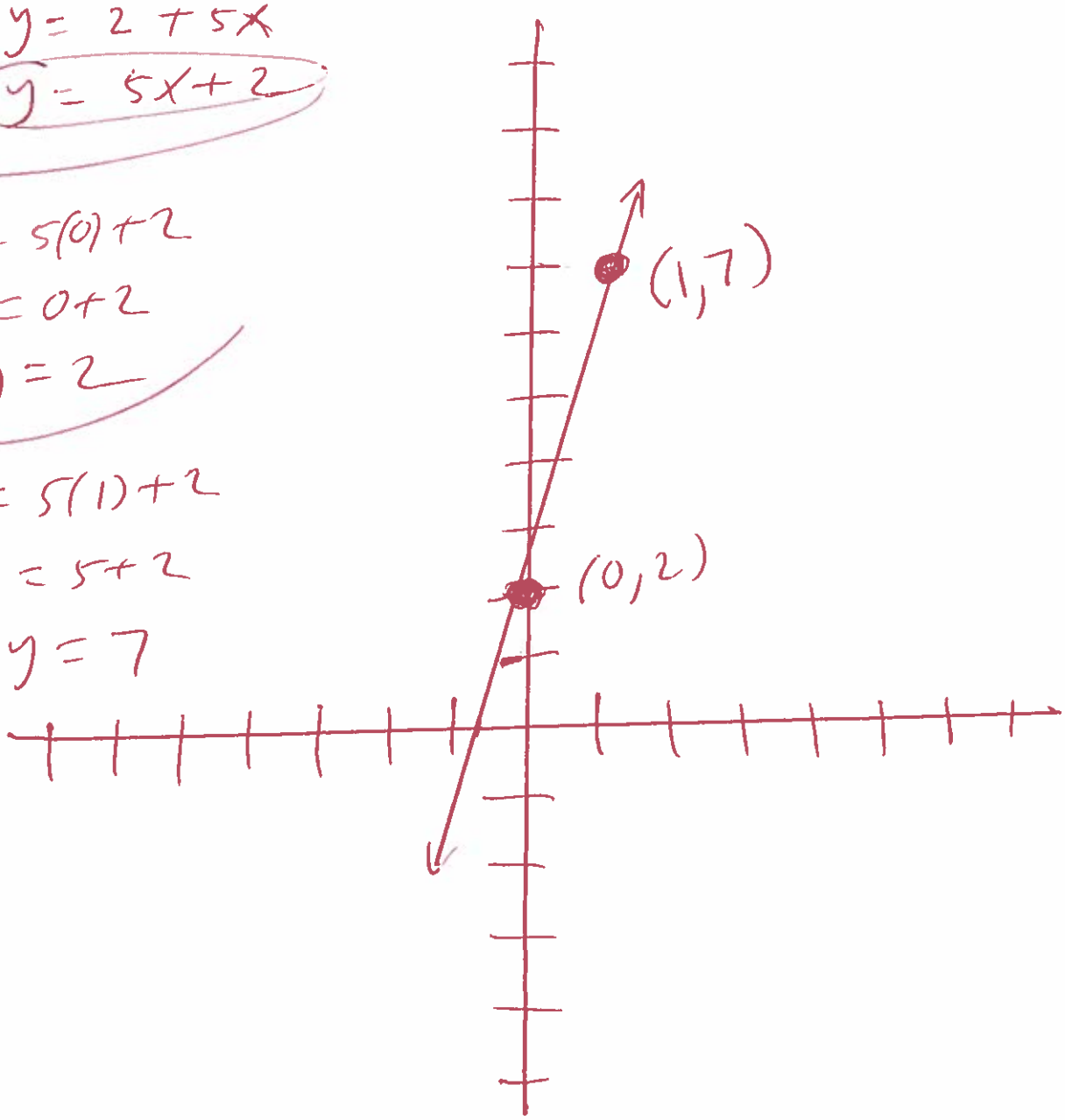
$y = 5(1) + 2$

$y = 5 + 2$

$y = 7$

(2)

x	y
0	2
1	7



(4) Find the slope of the line through the two points $(8, 5)$ and $(6, 9)$. (3)

$x_1\ y_1$ $\quad$ $x_2\ y_2$

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

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

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

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

$$m = -2$$

(5) Find the equation of the line with point slope $(5, 2)$ $\quad$ $m = 2 =$ slope.

$x_1\ y_1$

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

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

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

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

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

$$y = 2x - 8$$

6. Find $f(4)$ when $f(x) = x^2 + 4x - 3$ (4)

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

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

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

$f(4) = 32 - 3$

$f(4) = 29$

7. Solve

$-2x + 3y = 2$

$-3x + 5y = 2$

$(-2x + 3y = 2)(-5)$ mult

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

$10x - 15y = -10$

$-9x + 15y = 6$

$1x = -4$

$x = -4$

Subst

$-2x + 3y = 2$

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

$8 + 3y = 2$

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

$3y = -6$

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

$y = -2$

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

(8) Solve

$x+y=7$

$x+y=4$

$\begin{pmatrix} x+y=7 \\ x+y=4 \end{pmatrix}\begin{pmatrix} -1 \\ 1 \end{pmatrix}$ multiply

$-1x-1y=-7$

$1x+1y=4$

$0 \neq -3$

no solution

(9) Solve

$-2x+2y=-5$

$6x-6y=15$

$\begin{pmatrix} -2x+2y=-5 \\ 6x-6y=15 \end{pmatrix}\begin{pmatrix} 6 \\ 2 \end{pmatrix}$

$-12x+12y=-30$

$12x-12y=30$

$0+0=0$

$0=0$ always

infinite number of solutions

10. $(14x+5)-(-13x^2-7x+5)=$

$14x+5+13x^2+7x-5=$

$13x^2+21x=$

11. $6x^2(-2x^2+2x+6)=$

$-12x^4+12x^3+36x^2=$

12. $(a+8)(a+1)=$

$a^2+1a+8a+8=$

$a^2+9a+8=$

13. $(b-5)(b^2+5b+3)=$

$b^3+5b^2+3b-5b^2-25b-15=$

$b^3-22b-15=$

14. $(6x-1)(x^2-4x+1)=$

$6x^3-24x^2+6x-1x^2+4x-1=$

$6x^3-25x^2+10x-1=$

15. $(3a-7)^2 =$

$(3a-7)(3a-7) =$

$9a^2 - 21a - 21a + 49 =$

$9a^2 - 42a + 49 =$

16. $(x+11)(x-11) =$

$x^2 - 11x + 11x - 121 =$

$x^2 - 121 =$

17. $\dfrac{2^{-7} x^{-5} y^3}{2^{-4} x^{-8} y^6} =$

$\dfrac{2^4 x^8 y^3}{2^7 x^5 y^6} =$

$\dfrac{x^{8-5}}{2^{7-4} y^{6-3}} =$

$\dfrac{x^3}{2^3 y^3} =$

$\dfrac{x^3}{2 \cdot 2 \cdot 2\, y^3} =$

$\dfrac{x^3}{8 y^3}$

18. $\frac{5m^2+5m-10}{m+2}$

use synthetic division

-2 | 5 | 5 | -10

	-10	10
5	-5	0 rem

$5m-5$

OR use Long division (8)

$\frac{5m^2+5m-10}{m+2}$

$5m-5$

$m+2 \overline{)\ 5m^2+5m-10}$

$-(5m^2+10m)$

$-5m-10$

$-(+5m+10)$

0 rem

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

use synthetic division

-2 | 1 | 9 | 6

	-2	-14
1	7	-8 Rem

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

OR

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

OR use Long division

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

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

$x+2 \overline{)\ x^2+9x+6}$

$-(x^2+2x)$

$7x+6$

$-(7x+14)$

-8 Rem

(20) Factor GCF

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

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

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

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

(9)

(21) Factor by grouping

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

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

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

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

(22) factor

$x^2 - x - 42 =$

42.1
21.2
6.7
14.3

possible

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

23. Factor

$u^2 - 3uv - 28v^2 =$

28.1
14.2
4.7
possible

$(u + 4v)(u - 7v) =$

18.

24. Factor

$x^2 + 3xy - 18y^2 =$

18.1
9.2
6.3
possible

$(x - 3y)(x + 6y) =$

25. Factor

$z^2 - 121 =$

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

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

formula

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