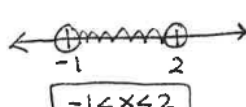
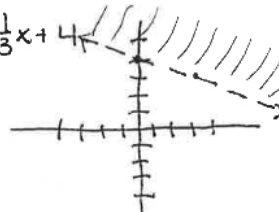


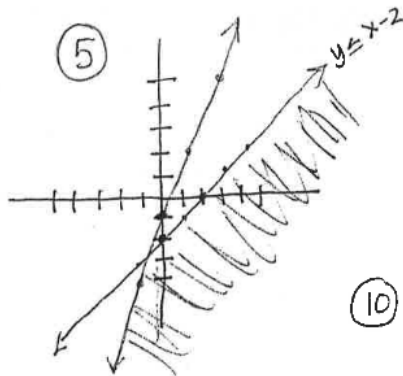
1st Sem Final Review #1

① $Y = Kx$
 $3 = K(7)$
 $\frac{3}{7} = K$
 $Y = \frac{3}{7}x$
 $8 = \frac{3}{7}x$
 $\frac{56}{3} = x$

② $W = Kg^3$
 $18 = K(3)^3$
 $18 = 27K$
 $\frac{18}{27} = K = \frac{2}{3}$
 $W = \frac{2}{3}g^3$
 $W = \frac{2}{3}(6)^3$
 $W = \frac{2}{3}(216)$
 $W = 144$

③ $|2x-1| < 3$
 $2x-1 < 3$ and $2x-1 > -3$
 $2x < 4$ and $2x > -2$
 $x < 2$ and $x > -1$

 $-1 < x < 2$

④ $y > -\frac{1}{3}x + 4$


⑤ 
 $3x - y \geq 1$
 $-y \geq -3x + 1$
 $y \leq 3x - 1$

⑥ $f(x) = x^2 + 2x - 3$
 $0 = x^2 + 2x - 3$
 $0 = (x+3)(x-1)$
 $x = -3$ $x = 1$
 $(-3, 0)$ $(1, 0)$

⑦ $g(x) = 6x^2 - x - 2$
 $0 = 6x^2 - x - 2$

$2x$	$6x^2 - 4x$
1	$3x - 2$

 $(3x-2)(2x+1) = 0$
 $3x-2 = 0$ or $2x+1 = 0$
 $x = \frac{2}{3}$ $x = -\frac{1}{2}$
 $x = \frac{2}{3}$ or $-\frac{1}{2}$

⑧ $S_{165} = ?$
 $455 + 445 + 435 + 425 + \dots$
 arithmetic $d = -10$ $a_1 = 455$
 $S_{165} = \frac{165}{2}(455 + a_{165}) = \frac{165}{2}(455 - 1185)$
 $a_{165} = 455 - 10(164) = -1185$
 $= -60225$

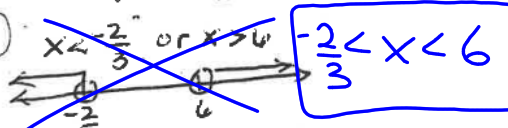
⑨ $\sum_{w=1}^{244} 3w^2 - 10w - 4$
 $3 \frac{n(n+1)(2n+1)}{6} - 10 \frac{n(n+1)}{2} - 4n$
 $14616210 - 298900 - 976$
 14316334

⑩ a) $4, 7, 10, 13, \dots$
 recursive: $a_1 = 4$
 $a_n = a_{n-1} + 3$

b) arithmetic
 $a_n = 4 + 3(n-1)$

⑪ $-2, 4, -8, 16, \dots$
 a) recursive: $a_1 = -2$
 $a_n = -2a_{n-1}$

b) geometric
 $a_n = -2(-2)^{n-1}$
 ⑫ $\left(\frac{2x^5y^{-2}z}{5x^2y^5z^{-6}}\right)^{-2} = \left(\frac{5x^2y^5z^{-6}}{2x^5y^{-2}z}\right)^2 = \frac{25x^4y^{10}z^{-12}}{4x^{10}y^{-4}z^2} = \frac{25y^{14}}{4x^6z^{14}}$

⑬ ~~$x < -\frac{2}{3}$ or $x > 6$~~

 $-\frac{2}{3} < x < 6$

⑭ $(7y)^3 + 5^3 = (7y+5)(49y^2 - 35y + 25)$

⑮ $x = \frac{3}{2}$ or $x = \frac{-3 \pm 3i\sqrt{3}}{4}$