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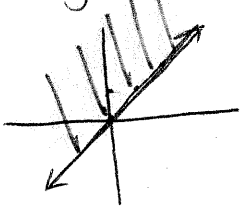
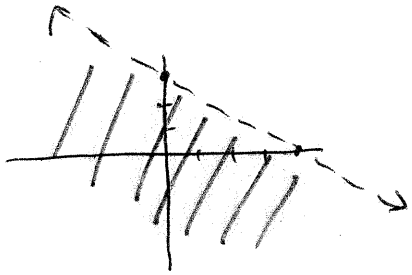
1. $y \geq x$



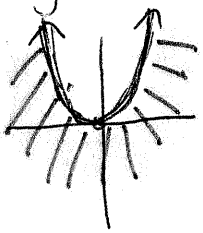
(3) $3x+4y<12$

$4y<-3x+12$

$y<-\frac{3}{4}x+3$



(5) $y \leq x^2$



AOS: $x=\frac{-0}{2(1)}=0$

V = (0,0)

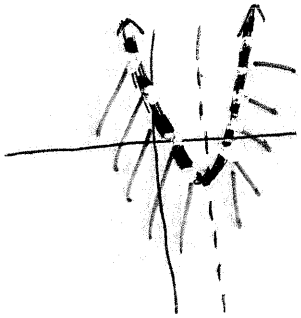
x	y
1	1
-1	1

(7) $y < 2x^2-4x+1$

AOS: $x=\frac{--4}{2(2)}=1$

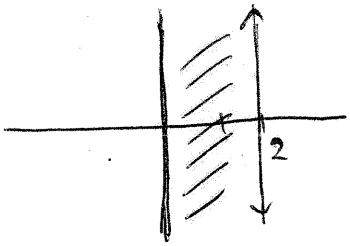
$y=2(1)^2-4(1)+1=-1$

Vertex = (1,-1)

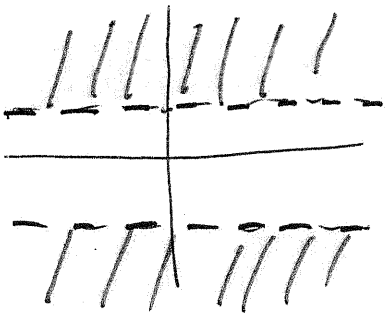


x	y
0	1
2	1

(9) $0 \leq x \leq 2$



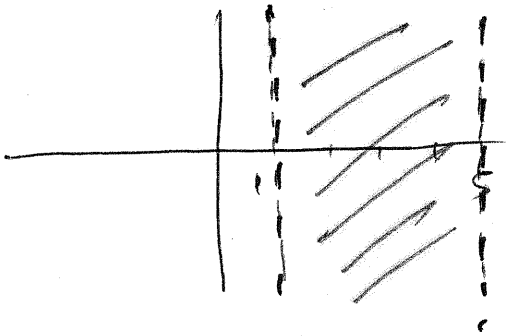
(11) $|y|>1 \rightarrow y>1$ or $y<-1$



(13) $|x-3|<2$

$-2<x-3<2$

$1<x<5$

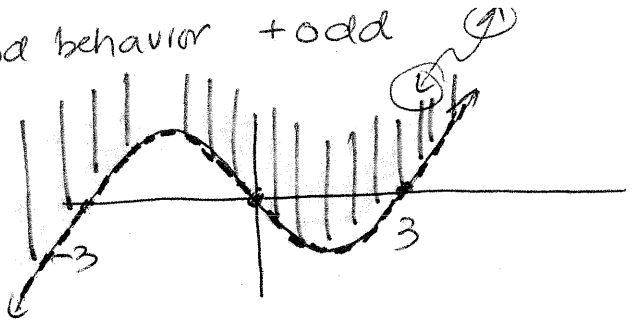


(15) $y > x^3 - 9x$ → End behavior + odd

$y > x(x^2 - 9)$

$y > x(x+3)(x-3)$

0 (Single), −3 (Single), 3 (Single)

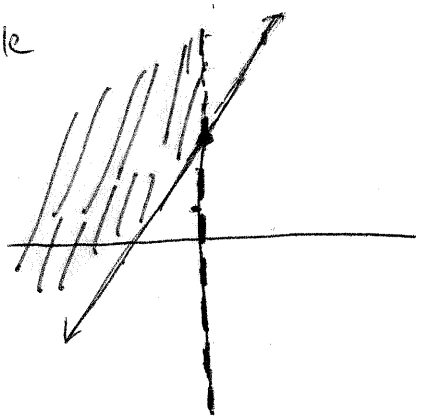


(19) $x < 0$

$3x - 2y \leq -6$

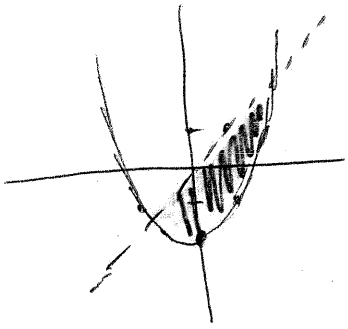
$-2y \leq -3x - 6$

$y \geq \frac{3}{2}x + 3$



(21) $y \geq x^2 - 2$ → AOS: $x = \frac{-0}{2(1)} = 0$ → Vertex $(0, -2)$

$y < x$

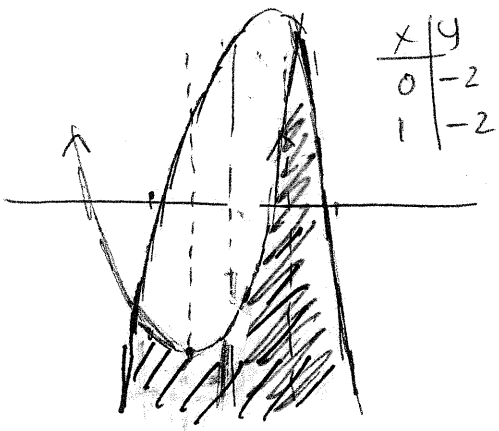


x	y
1	−1
−1	−1

(24) $y \leq x^2 + x - 2$

AOS: $x = \frac{-1}{2}$ → $y = (-\frac{1}{2})^2 + (-\frac{1}{2}) - 2 = -2\frac{1}{4}$

Vertex $= (-\frac{1}{2}, -2\frac{1}{4})$



x	y
0	−2
1	−2

$y \leq -x^2 + x + 12$

AOS: $x = \frac{-1}{-2} = \frac{1}{2}$

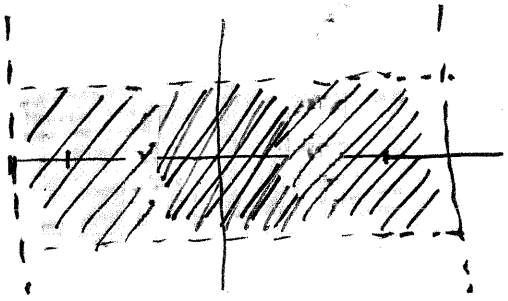
$y = -(\frac{1}{2})^2 + \frac{1}{2} + 12$

Vertex $= (\frac{1}{2}, 12\frac{1}{4})$

x	y
0	12
1	12

(27) $|x|<3$ $\quad |y|<1$

$-3<x<3$ $\quad -1<y<1$



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$r^3 - 9r > 8r^2$

$r^3 - 8r^2 - 9r > 0$

$r(r^2 - 8r - 9) > 0$

$r(r-9)(r+1) > 0$

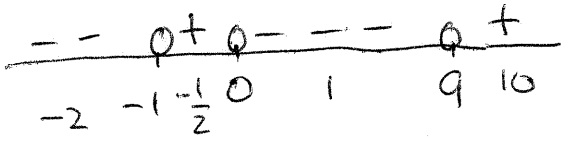
Test 10: + + + → +

1: + − + → −

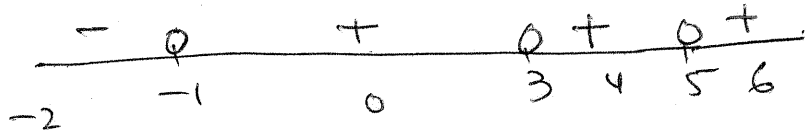
$-\frac{1}{2}$: − − + → +

−2: − − − → −

$R > 9$ or $-1 < R < 0$



(26) $\dfrac{(x+1)(x-3)^2}{(x-5)^2} > 0$



$x > 5$ or $3 < x < 5$ or

$-1 < x < 3$

OR $\quad x > -1 \; ; \; x \neq 3 \; ; \; x \neq 5$

6: $\frac{+}{+}\frac{+}{} \to +$

4: $\frac{+}{+}\frac{+}{} \to +$

0: $\frac{+}{+}\frac{+}{} \to +$

−2: $\frac{-}{+}\frac{+}{} \to -$

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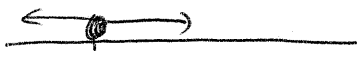
$0 \leq |x-7| < 2$

$|x-7| \geq 0$ and $|x-7| < 2$

$x-7 \geq 0$ or $x-7 \leq 0$

$x \geq 7$ or $x \leq 7$

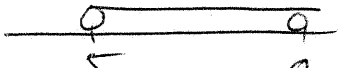


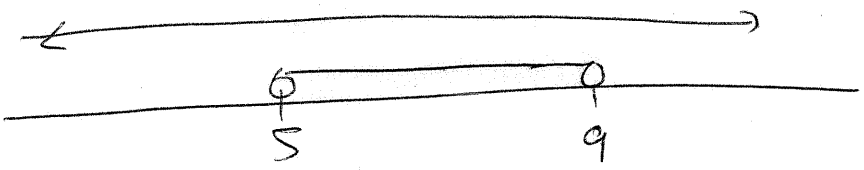
all real #s

$-2 < x-7 < 2$

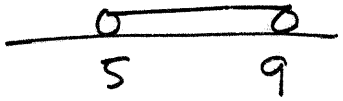
$+7 \quad +7 \quad +7$

$5 < x < 9$





red and purple → $5 < x < 9$

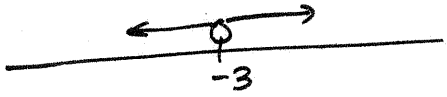


(30) $0 < |x+3| < 1$

$|x+3| > 0$ and $|x+3| < 1$

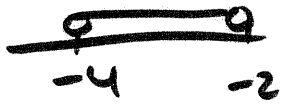
$x+3 > 0$ or $x+3 < 0$

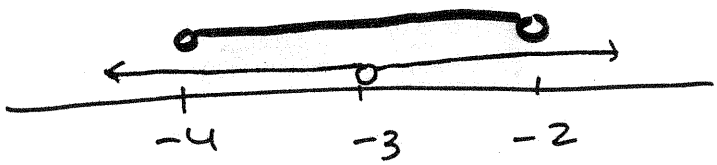
$x > -3$ or $x < -3$



$-1 < x+3 < 1$

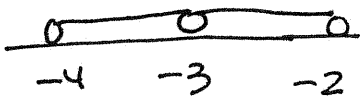
$-4 < x < -2$





$-4 < x < -3$ or $-3 < x < -2$

OR



$-4 < x < -2 \; ; x \neq -3$