

12)  $D: (-\infty, -4] \cup (0, \infty)$   
 $R: (0, 3] \cup (8, 8) \cup [12, \infty)$

13)  $D: (-\infty, 2] \cup (4, \infty)$   
 $R: (-\infty, 7) \cup [2]$

14)  $D: (-\infty, \infty)$   
 $R: (-\infty, 10) \cup [6, 2]$

15)  $D: (-\infty, 4) \cup [-1, 5] \cup (7, \infty)$   
 $R: [4, \infty)$

16)  $f(x) = \begin{cases} -8; & x \leq -6 \\ \frac{1}{4}x + 2; & -4 \leq x \leq 4 \\ 4; & x > 6 \end{cases}$

17)  $f(x) = \begin{cases} -x - 4; & x < -3 \\ x + 1; & -3 \leq x \leq 1 \\ -6; & x > 4 \end{cases}$

18)  $f(x) = \begin{cases} -9; & x < -5 \\ x + 4; & 0 \leq x \leq 3 \\ x - 3; & x > 7 \end{cases}$

19)  $f(x) = \begin{cases} 8; & x \leq -1 \\ 2x; & 4 \leq x \leq 6 \\ 2x - 15; & x > 7 \end{cases}$

6)  $x^2 - 8x - 9 = 0$   
 $(x-9)(x+1) = 0$   
 $x-9=0 \quad x+1=0$   
 $x = 9, -1$

7)  $(-4.8x^2 + 1.6x + 24) = (6)^{10}$   
 $-48x^2 + 16x + 240 = 0$   
 $-16(3x^2 - x - 15) = 0$   
 $x = \frac{1 \pm \sqrt{(-1)^2 - 4(3)(-15)}}{2(3)}$

$x = \frac{1 \pm \sqrt{181}}{6}$

8)  $12x^2 + 15x - 4 = 0$   
 $x = \frac{-15 \pm \sqrt{(15)^2 - 4(12)(-4)}}{2(12)}$   
 $= \frac{-15 \pm \sqrt{225 + 192}}{24}$

$x = \frac{-15 \pm \sqrt{417}}{24}$

14)  $130 = -16t^2 + 112t + 6$   
 $-136 = -16t^2 + 112t - 130$

$0 = -16t^2 + 112t - 124$   
 $-4(4t^2 - 28t + 31) = 0$

$x = \frac{28 \pm \sqrt{(-28)^2 - 4(4)(31)}}{2(4)}$

$= \frac{28 \pm \sqrt{784 - 496}}{8}$

$= \frac{28 \pm \sqrt{288}}{8}$

$x = 5.62, 1.38$

$5.62 \text{ sec}$

$$14 \quad \textcircled{b} \quad \begin{array}{r} 250 = -16t^2 + 112t + 6 \\ \underline{-250} \qquad \qquad \qquad \underline{-250} \end{array}$$

$$0 = -16t^2 + 112t - 244$$

$$b^2 - 4ac$$

$$(112)^2 - 4(-16)(-244)$$

$$12544 - 15616$$

$$= -3072$$

No, it will not

$$\textcircled{c} \quad -16t^2 + 112t + 6 = 0$$

$$-2(8t^2 - 56t - 3) = 0$$

$$x = \frac{56 \pm \sqrt{(56)^2 - 4(8)(-3)}}{2(8)}$$

$$= \frac{56 \pm \sqrt{3136 + 96}}{16}$$

$$= \frac{56 \pm \sqrt{3232}}{16}$$

$$x = 7.05, -.05$$

7.05 Sec

$$\textcircled{16} \quad (3-4i) - (9-5i)$$

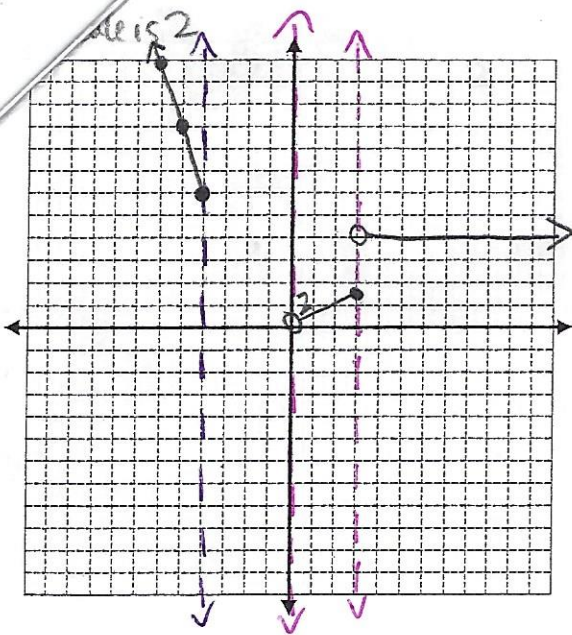
$$3-4i-9+5i$$

$$\underline{-6+i}$$

$$\textcircled{17} \quad \frac{4i}{4-i} \cdot \frac{4+i}{4+i} = \frac{16i + 4i^2}{16 + 4i - 4i - i^2} = \frac{-4 + 16i}{17}$$

12-19

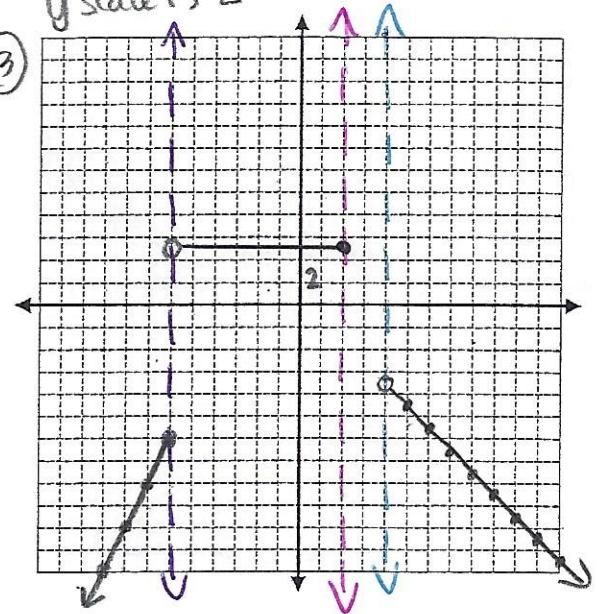
scale is 2



Key

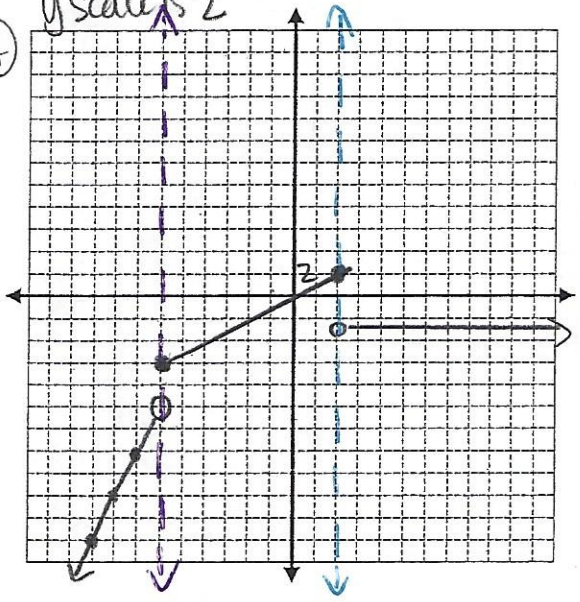
y scale is 2

13



14

y scale is 2



15

