

TIPC CHP REVIEW

ANSWER KEY w/ WORK

① $|7x-1| \geq 4$

$7x-1 \geq 4$ or $7x-1 \leq -4$

$7x \geq 5$

$7x \leq -3$

$x \geq 5/7$ or $x \leq -3/7$

$(-\infty, -3/7] \cup [5/7, \infty)$

② $|x+5| \leq 8$

$-8 \leq x+5 \leq 8$

$-5 \leq x \leq 3$

$-13 \leq x \leq 3$

$[-13, 3]$

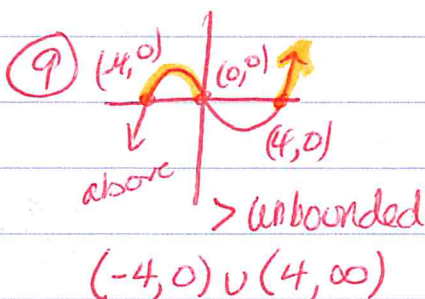
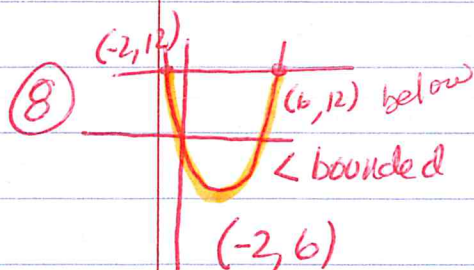
③ $(5+8i)(5+2i) = 25 + 10i + 40i + 16i^2 = 25 + 50i + 16(-1) = 25 - 16 + 50i$

$9+50i$
↑

④ $(3+5i)(3-5i) = 3^2 + 5^2 = 9 + 25 = 34$ $\frac{a=4}{b=5}$

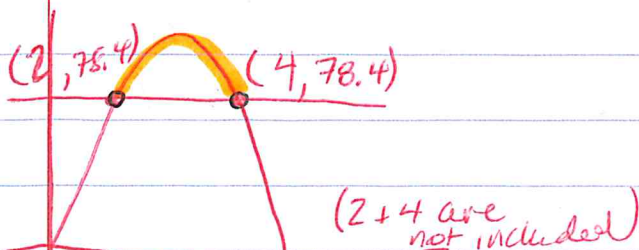
$4^2 + 5^2 = 16 + 25 = 41$

⑥ $(5-2i) + (4+4i) = 9+2i$ ⑦ $(3+8i) - (-2+i) = 3+8i+2-i = 5+7i$

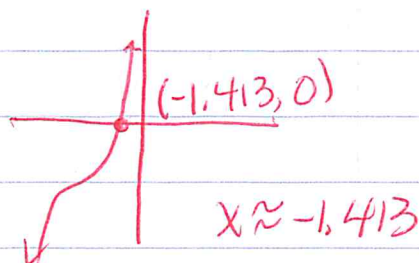


⑩ $x^2 + 2x - 35 \geq 0$
 $(x+7)(x-5) = 0$
 $x+7=0$ $x-5=0$
 $x=-7$ $x=5$
unbounded
 $(-\infty, -7] \cup [5, \infty)$

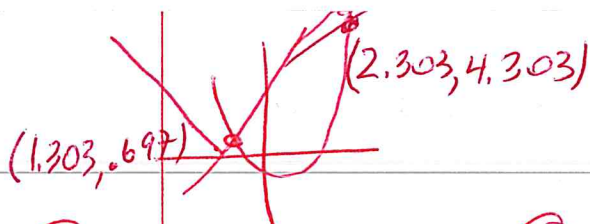
⑪ $f_1 = -9.8x^2 + 58.8x$
 $f_2 = 78.4$



⑫ $x^3 + 9x^2 + 27x + 23 = 0$



The rocket will be higher
than 78.4m after 2 sec + before 4 sec.



$$(13) |x+2| = x^2 - 1$$

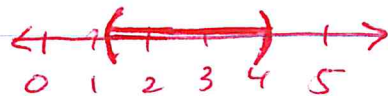
$$x \approx 1.303$$

$$x \approx 2.303$$

$$(14) 2 \leq 3x - 2 \leq 10$$

$$4 < 3x < 12$$

$$\frac{4}{3} < x < 4$$



$$(15) x^2 = 9 - 4x$$

$$x^2 + 4x = 9$$

$$\left(\frac{4}{2}\right)^2 \leftarrow x^2 + 4x + 4 = 9 + 4$$

$$(2)^2 \quad (x+2)^2 = 13$$

4

$$x+2 = \pm \sqrt{13}$$

$$x = -2 \pm \sqrt{13}$$

$$(16) \frac{8x-4}{4} + \frac{5x+1}{5} = \frac{1}{2} \quad \text{LCM of 4, 5, 2} = 20$$

$$\frac{20}{1} \left(\frac{8x-4}{4} \right) + \frac{20}{1} \left(\frac{5x+1}{5} \right) = \frac{20}{1} \cdot \frac{1}{2}$$

$$5(8x-4) + 4(5x+1) = 10$$

$$40x - 20 + 20x + 4 = 10$$

$$60x - 16 = 10$$

$$60x = 6$$

$$x = \frac{6}{60} = \frac{1}{10}$$

$$(17) x^2 - 12x + 45 = 0$$

$$(-12)^2 - 4(1)(45)$$

$$144 - 180$$

-36 2 imaginary solns

$$x = \frac{-(-12) \pm \sqrt{-36}}{2(1)} \leftarrow \frac{-1}{36}$$

$$x = \frac{12 \pm 6i}{2} = 6 \pm 3i$$

$$(18) \frac{9+2i}{2-4i} \cdot \frac{2+4i}{2+4i}$$

$$= \frac{18+36i+4i+8i^2}{2^2+4^2} = \frac{18+40i+8(-1)}{4+16}$$

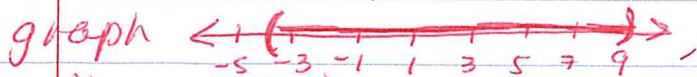
$$\frac{1+4i}{2} \leftarrow \frac{10+40i}{20} \leftarrow \frac{18+40i-8}{20}$$

$$(19) \left(\frac{15a^6b^5}{ab^2} \right) \left(\frac{2b^2}{3a^3b^7} \right) = \frac{30a^6b^7}{3a^4b^9} = 10a^2b^{-2} = \frac{10a^2}{b^2}$$

20, words: All #'s between 4 + 9

inequality: $-4 < x < 9$

interval: $(-4, 9)$

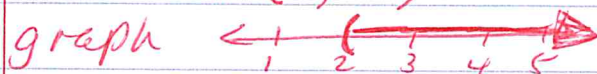


24, a) bounded, b) open

21. inequality: $x > 2$

words: All real #'s greater than 2

interval: $(2, \infty)$



25 a) unbounded b) open

22. interval: $(-\infty, 1]$

words: all real #'s less than or = to 1

inequality: $-\infty < x \leq 1$ or $x \leq 1$



26 a) unbounded b) closed

23. Graph:

words: All real #'s greater than or equal to 7 and less than -3

inequality: $-7 \leq x < 3$

interval: $[-7, 3)$

27 a) bounded, b) half-open

