

# Chid Review Key

FA 2014

1.  $x^2 - 4x - 21 = 0$   $(x-7)(x+3) = 0$   $\boxed{x=7 \quad x=-3}$

2. HA:  $y = -5$  VA:  $x = 8 \quad x = -8$

3. ~~HA~~  $\frac{-5-24}{-5-24-24} \cdot 120$   $3x^2 - 5x - 24x + 40$   $\frac{(x-8)(3x-5)}{(x-8)}$

$\boxed{(8, 19)}$

$3(8) - 5 = 19$

4.  $y = -12x - 3 + 3x^2$

$y = -4x^2 - 48x - 7$

$\frac{y}{3} + \frac{3}{3} = \frac{3x^2}{3} - \frac{12x}{3}$

$\frac{y+7}{-4} + 36 = x^2 + 12x + 36$

$\frac{y}{3} + 1 = x^2 - 4x + 4$

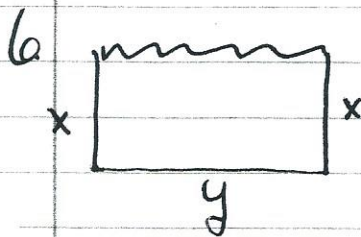
$\frac{y+7}{-4} = (x+6)^2 - 36$

$\frac{y}{3} = (x-2)^2 - 5$   
 $\boxed{y = 3(x-2)^2 - 15}$

$y+7 = -4(x+6)^2 + 144$

$\boxed{y = -4(x+6)^2 + 137}$

5.  $x^3 - 1 \overline{) \begin{array}{r} x^5 + 0x^4 + 0x^3 + 0x^2 + 0x + 7 \\ -x^5 \\ \hline x^2 + 0x + 7 \end{array}}$   
 $= \boxed{x^2 + \frac{x^2 + 0x + 7}{x^3 - 1}}$



$2x + y = P$   
 $A = xy$

$A = (2500 - 2x)x$

$\boxed{625 \times 1250 \text{ ft}}$   
 $\boxed{781,250 \text{ ft}^2}$

7.  $\begin{array}{r} \boxed{1} \quad 1 \quad -4 \quad -5 \\ \downarrow \quad 1 \quad -3 \\ 1 \quad -3 \quad -8 \end{array}$   $y = x - 3$

8.  $\begin{array}{r} \boxed{6} \quad 2 \quad -13 \quad -4 \quad 60 \\ \downarrow \quad 12 \quad -6 \quad -60 \\ 2 \quad -1 \quad -10 \quad 0 \end{array}$   $2x^2 - x - 10$   
 $(2x - 5)(x + 2)$

9.  $x(x-11)(x+11)(x-9)(x+9)$   $(x-6)(2x-5)(x+2)$

$x(x^2-121)(x^2-81) = x(x^4 - 81x^2 - 121x^2 + 9801)$

$x^5 - 202x^3 + 9801x$

10. \$43,250 must multiply by 100

11.  $\frac{\pm 8 \pm 1 \pm 2 \pm 4}{\pm 3 \pm 1}$   $\frac{\pm 8 \pm 1 \pm 2, \pm 4 \pm 8/3}{\pm 1/3 \pm 2/3 \pm 4/3}$

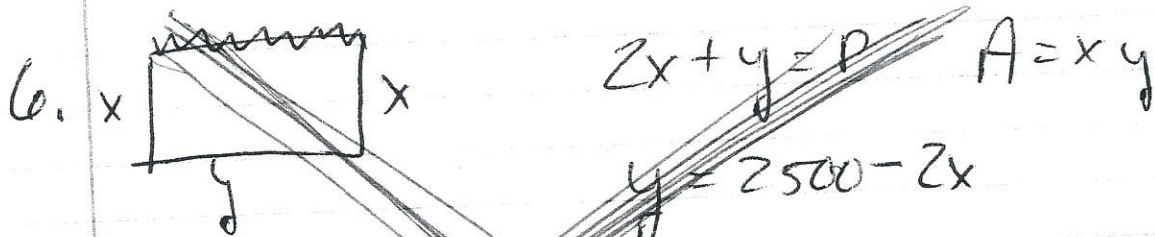
12. A.  $y = 2$       B.  $y = 0$

13. A.  $x \neq 0$   $x \neq 13$  All  $\mathbb{R}$       B.  $x \neq -2$   $x \neq 11$  All  $\mathbb{R}$

14.  $\begin{array}{r} \boxed{-2} \quad 4 \quad 7 \quad -11 \quad -18 \\ \downarrow \quad -8 \quad 2 \quad -18 \\ 4 \quad -1 \quad -9 \quad 0 \end{array}$   $4x^2 = x - 9$   
 $\frac{-1 \pm \sqrt{1 + 4 \cdot 4 \cdot 9}}{8}$

$x = -2, \frac{-1 \pm \sqrt{145}}{8}$





$$y = 2500 - 2x$$

$$A = (2500 - 2x)x$$

$$x = 625 \quad y = 1250$$

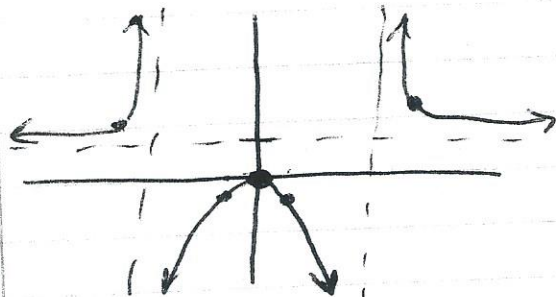
$$A = 781250$$

$$2500x - 2x^2$$

$$-\frac{2500}{4}$$

15

A.  $f(x) = \frac{x^2}{x^2 - 9}$



y intercept (0,0)

x intercept (0,0)

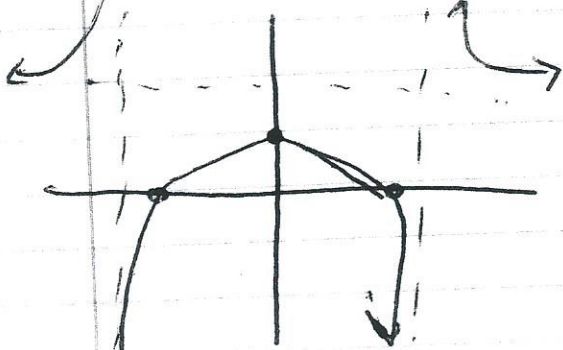
$$VA = x = 3 \quad x = -3$$

$$HA = y = 1$$

Points  $(-1, -\frac{1}{8})$   $(1, -\frac{1}{8})$

Points  $(4, 3.2)$   $(-4, 3.2)$

B  $\frac{5(x^2 - 16)}{x^2 - 25}$



$$y (0, \frac{80}{25})$$

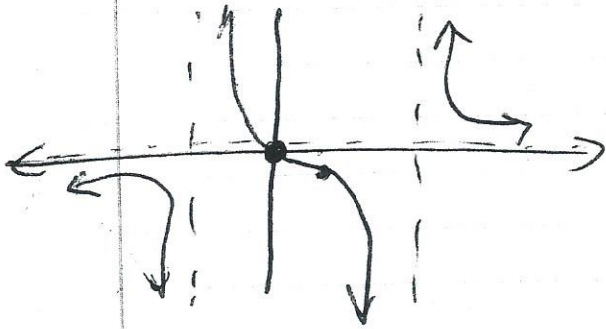
$$x (0, -4) (0, 4)$$

$$VA = x = 5 \quad x = -5$$

$$HA: y = 5$$

Points:

C.  $\frac{2x}{x^2 - x - 12}$



YI (0,0)

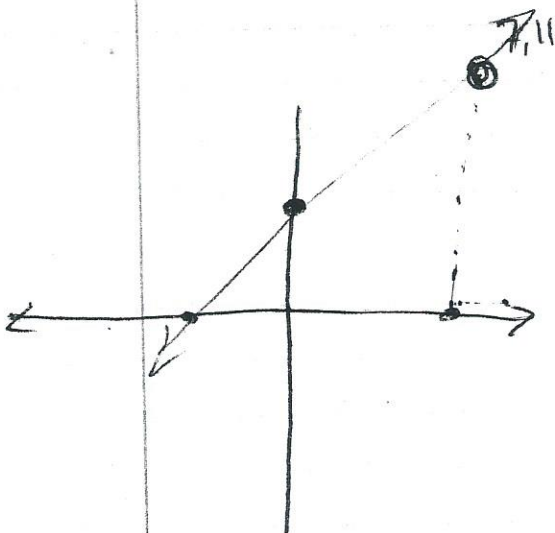
X intercept (0,0)

VA:  $x^2 - x - 12 = 0$   
 $(x-4)(x+3)$   $x=4, x=-3$

HA =  $y=0$

Points	x	y
	1	-1/6
	5	

D.  $\frac{x^2 - 3x - 28}{x - 7}$



Y intercept  $\frac{-28}{-7}$  (0,4)

X Intercept  $x^2 - 3x - 28 = 0$   
 $(x-7)(x+4)$   
 (7,0) (-4,0)

VA:  $x=7$

HA: Slant  $\rightarrow$  NA  
 because hole

$$7 \overline{) 1 - 3 - 28}$$

$$1 \quad + 4 \quad + 28$$

$$\boxed{y = x + 4}$$

\* VA = X intercept \*  
 Must look closer

$$\frac{(x-7)(x+4)}{(x-7)}$$

$\rightarrow$  Hole at  $x=7$   
 $7+4=11$

$$\begin{array}{r|rrrrr} 3 & 5 & 31 & -90 & -144 \\ & \downarrow & & & \\ & 5 & 46 & 48 & 0 \end{array}$$

$$\begin{array}{r|rrrr} -8 & 5 & 46 & 48 \\ & \downarrow & -40 & -48 \\ & 5 & 6 & 0 \end{array} \quad (5x+6)$$

$$(x-3)(x+8)(5x+6)$$

$$17. y = a(x+7)^2 + 5$$

$$-9 = a(12+7)^2 + 5$$

$$a = \frac{-14}{361}$$

$$y = \frac{-14}{361}(x+7)^2 + 5$$

~~18. Remainder = 0~~  
Not a zero

~~18~~ No remainder  $\neq 0$

$$19. -5x(x^2-81) \quad x=0 \quad x=\pm 9$$

20. 4

$$\begin{array}{r} x^2 - 3x + 1 \\ 21 \quad 4x+5 \quad \overline{4x^3 - 7x^2 - 11x + 5} \\ \quad \quad \quad - \underline{4x^3 + 5x^2} \quad \downarrow \\ \quad \quad \quad \quad \quad -12x^2 - 11x \quad \downarrow \\ \quad \quad \quad \quad \quad - \underline{-12x^2 - 15x} \quad \downarrow \end{array}$$

$$x^2 - 3x + 1$$

$$22 \quad -2 \quad \begin{array}{r|rrrr} 5 & 0 & 6 & 8 \\ & \downarrow & -10 & 20 & -52 \\ & 5 & -10 & 26 & 44 \end{array} \quad 4x+5$$

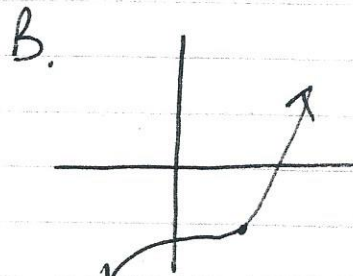
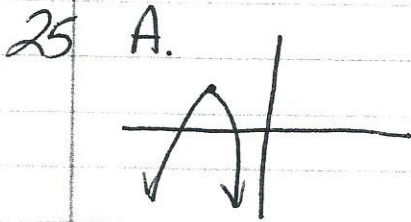
$$5x^2 - 10x + 26 + \frac{44}{x-2}$$

23. Y.int. (0, -6) X.int. (-.317, 0)  
(6.317, 0)

Vertex (3, -33)



24 Rise to right, fall to left



26 A. opens down  
V:  $(4, 3)$

B. opens up  
V:  $(-2, -6)$

27 A. negative, odd

B. even positive

~~28~~ ~~29~~ ~~30~~ ~~31~~ ~~32~~ ~~33~~ ~~34~~ ~~35~~ ~~36~~ ~~37~~

28  $\{-5, -3, 2, 5\}$

29 Vertical compression, left 2, down 5

30. \$26

31. \$4.44

32. fall to left + right

33 leading coefficient

34 \$20,368.42 No cant divide by 0

~~35~~ 35-37 in book