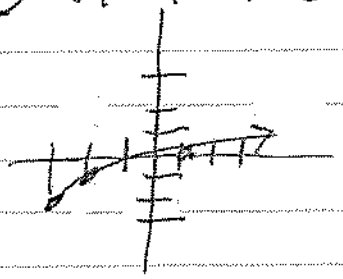
A2 Final Review Answers

① $\frac{\sqrt{14}}{2}$ ② $\frac{\sqrt[3]{45}}{3}$ ③ 9 ④ $\frac{1}{8}$

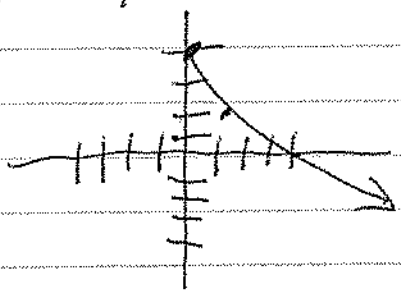
⑤ Square root



D: $\{x \mid x \geq -3\}$

R: $\{y \mid y \geq -2\}$

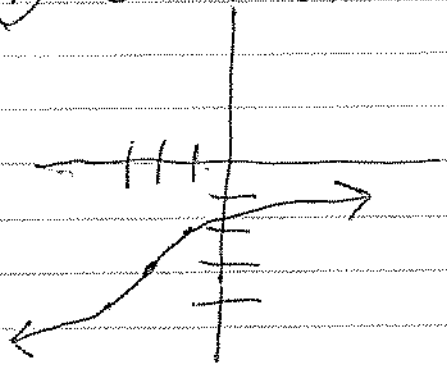
⑥ Square root



D: $\{x \mid x \geq 0\}$

R: $\{y \mid y \leq 4\}$

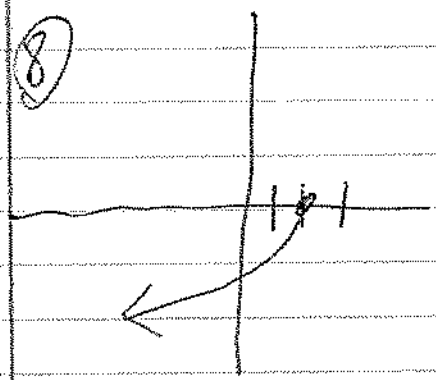
⑦ Cube root



D: $\{x \mid x \in R\}$

R: $\{y \mid y \in R\}$

⑧



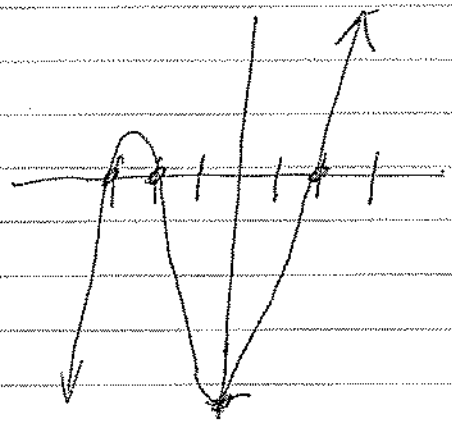
D: $\{x \mid x \leq 2\}$

R: $\{y \mid y \leq 0\}$

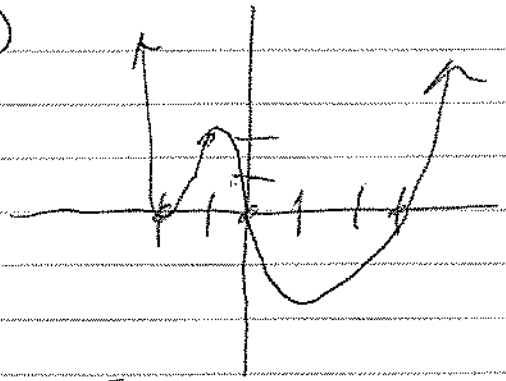
(9) left 3
down 1
expand vert. factor of 2

(10) up 2
reflect over x-axis
expand vert. factor of 4

(11) zeros: 2, -2, -3
degree: 3
max turns: 2
end behavior
$x \to -\infty$ $x \to \infty$
$y \to -\infty$ $y \to \infty$



(12) zeros: 0, 3, -2 (mult 2)
degree: 4
max turns 3
end behavior
$x \to -\infty$ $x \to \infty$
$y \to \infty$ $y \to \infty$



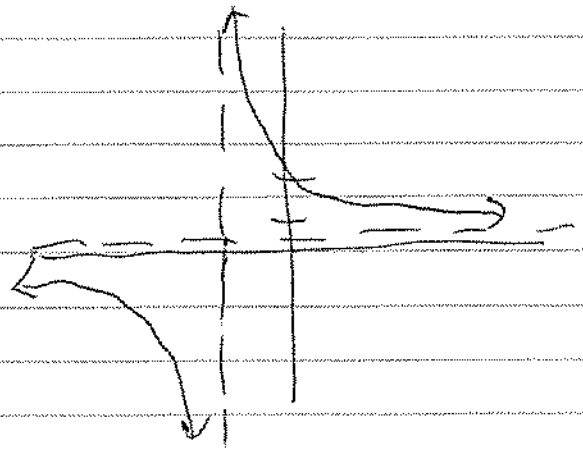
(13) $x = 6$

(14) $x = 1, -5$ ← extraneous

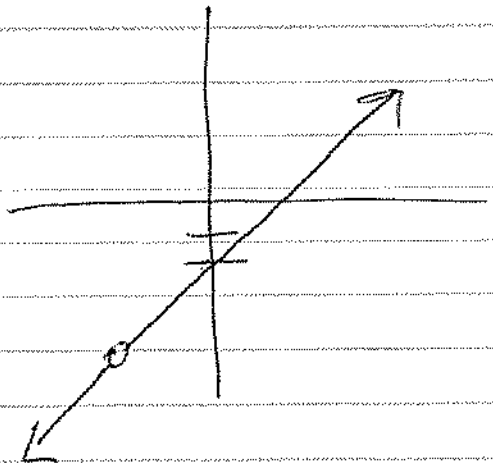
(15) $x = \pm 27$

(16) $x = 34$

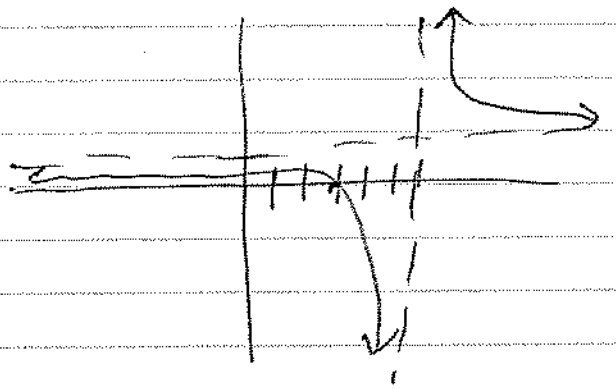
(17) VA: $x = -1$
HA: $y = 0$
x int: none
y int: $(0, 2)$
D: $\{x | x \neq -1\}$
R: $\{y | y \neq 0\}$



(18) VA: none
HA: none
x int: (2, 0)
y int (0, -2)
hole: (-5, -7)
D: $\{x \mid x \neq -5\}$
R: $\{y \mid y \neq -7\}$



(19) VA: $x = 6$
HA: $y = 1$
x int: (3, 0)
y int: $(0, 1/2)$
D: $\{x \mid x \neq 6\}$
R: $\{y \mid y \neq 1\}$



(20) $\dfrac{(x+5)^2}{(2x-3)(x+2)}$

(21) $x - 3$

(22) $\dfrac{2x+1}{x^2-1}$

(23) $12x^3y^3$

(24) $(x+4)(x+3)(x-3)$

(25) $\emptyset$ $\{x \neq \pm 4\}$

(26) -6 $\{x \neq 1\}$

(27) -2 $\{x \mid x \neq 0, 1\}$

(28) -5 $\{x \mid x \neq 0, 1\}$

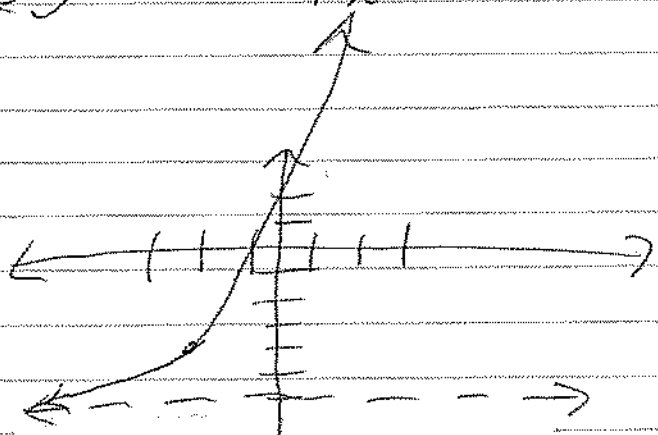
(29) -2 (30) 1 (31) -1

(32) $y^{-1} = 3x - 6$ yes (33) $y^{-1} = \pm\sqrt{x-4}$ no (34) $y^{-1} = \pm\sqrt[4]{\frac{x+6}{2}}$ no

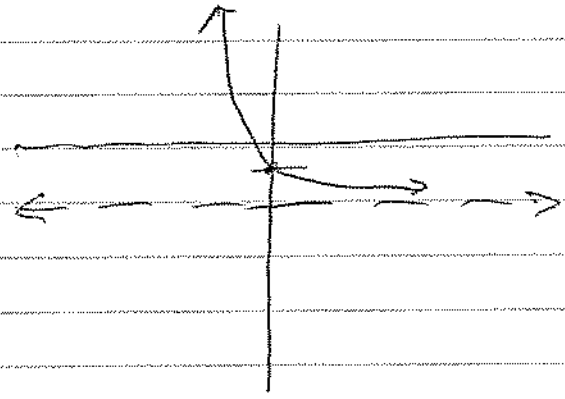
(35) $-x^2 + x - 9$ (36) $-x^2 - 4x - 9$

(37) $-x^2 + 2x - 3$

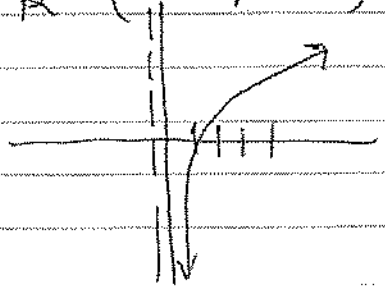
(38) HA: $y = -6$
D: $(-\infty, \infty)$
R: $(-6, \infty)$
growth



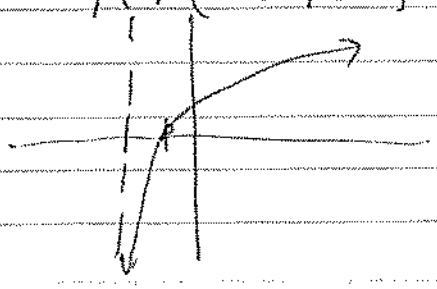
(39) HA: $y = -2$
D: $(-\infty, \infty)$
R: $(-2, \infty)$
decay



(40) VA: $x = 0$
D: $(0, \infty)$
R: $(-\infty, \infty)$



(41) VA: $x = -2$
D: $(-2, \infty)$
R: $(-\infty, \infty)$



(42) $2^4 = 16$ (43) $\log_5 25 = 2$

(44) $\frac{1}{2}\log_3 2 + \frac{1}{2}\log_3 x - 2\log_3 y$

(45) $\log_2 \frac{x^3 y^4}{z}$

(46) 4 (47) -3 (48) -3

(49) $-8/3$ (50) 4

(51) 16 (52) 3

(53) 2

(54a) $2000e^{10(.06)} = 2000e^{.6}$

(54b) $\frac{\ln 2}{.06} = \frac{50 \ln 2}{3}$

(55) $(3, -2)$ (56) $\emptyset$

(57) 4 (58) $6\sqrt{7}$ (59) $12x^2\sqrt[3]{3}$

(60) $d + n = 50$
$.10d + .05n = 4.05$