MATH 206 ANSWERS DEC 2012 FINAL EXAM (UNEDITED)

1 a) $-19\sqrt{2}$ b) $\log_2 8$ which $= 3$ 2a) $\frac{5\sqrt{3}+\sqrt{6}}{23}$ b) $-9-4\sqrt{5}$

3 a) $15x^5 - 10x^4 + 69x^3 - 11x^2 - 16$ b) $\frac{x+5}{x+1}$

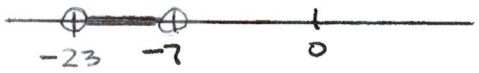
4 a) $(3x+2)(x-4)$

b) $(4-3x)(16+12x+9x^2)$

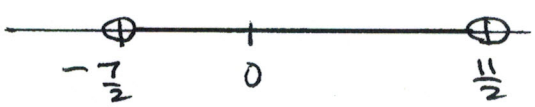
5. $\frac{x^2-6x+11}{(x+1)^2(x+7)}$

6 a) $x = -\frac{3}{4}, x = 2$ b) $x = \frac{-5 \pm 3\sqrt{5}}{2}$ c) $x = 4, x = 2$

7 a) $x > -23$ AND $x < -7$



b) $-\frac{7}{2} < x < \frac{11}{2}$



Interval: $\left(-\frac{7}{2}, \frac{11}{2}\right)$

8. $(+2\sqrt{3}, 2)$, $(-2\sqrt{3}, 2)$, $(0, -4)$

OR write $\begin{bmatrix} x = +2\sqrt{3}, y = 2 \\ x = -2\sqrt{3}, y = 2 \\ x = 0, y = -4 \end{bmatrix}$ } 3 possible solutions to the System of non Linear Equations

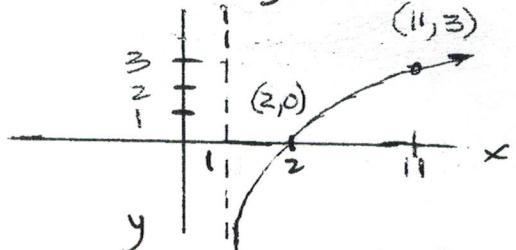
9 a) A is closer to C b) Circle:
Centre: $(-2, 2)$, radius $= 3$.

10 a) Domain $x \in R$ such that $x \neq 2$
Range $y \in R$ such that $y > 0$

b) Domain $x \in R$ such that $x \geq -2$
Range $y \in R$ such that $y \geq 0$

c) Domain $x \in R$ (No Restrictions)
Range $y \in R$ such that $y \geq 0$

11.



12 a) $\frac{2}{x+3}$ b) $\frac{x^2}{2(x+3)}$

c) $\frac{2}{2+3x}$ d) $\frac{2(x+3)}{x}$

13. a) $f^{-1}(x) = \frac{4x+3}{2-x}$ b) $f(x)$: VA is $x = -4$, HA is $y = 2$ c) $f^{-1}(x)$: VA is $x = 2$, HA is $y = -4$

14. 750 000 # at 19%, 250 000 $ at 15%

15. 7.50 $/hour 16 a) 5.81% b) 95.01% c) 59.54 years