

1a) $-\frac{1}{c^4}$ 1b) $\frac{(a\sqrt{a}-b\sqrt{b})(\sqrt{a}+\sqrt{b})}{ab} = \frac{a^2-b^2+(a-b)\sqrt{ab}}{a-b}$

$= a+b+\sqrt{ab}$

1c) $\frac{x+2-5}{(x-3)(x+2)} = \frac{1}{x+2}$

2a) $\frac{1}{0} \quad \frac{II}{2} \quad \frac{III}{2}$
 I: $-2x+x-2=5 \Leftrightarrow x=-7$
 II: $2x+x-2=5 \Leftrightarrow x=\frac{7}{3}$
 III: $2x-(x-2)=5 \Leftrightarrow x=3$

2b) $3x^2-4x-4=0 \Leftrightarrow x = \frac{2}{3} \pm \sqrt{\frac{4}{9} + \frac{4}{3}} = \frac{2}{3} \pm \frac{4}{3}$

3a) $x = \frac{3}{2} \pm \sqrt{\frac{9}{4} - 2} = \frac{3}{2} \pm \frac{1}{2}$ ~~HL > 0~~

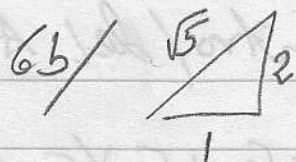
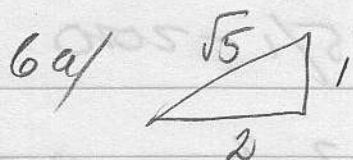
3b) $\frac{x^2-1+6(x-1)-x(x+1)}{(x-1)(x+1)} > 0 \Leftrightarrow \frac{5x-7}{(x-1)(x+1)} > 0$

$-1 < x < 1$ el $x > 7/5$

4) $\frac{x^2-4x+1}{3x-1} \sqrt{3x^3-13x^2+7x-1}$ $(3x-1)(x-2+\sqrt{3})(x-2-\sqrt{3})$
 $\frac{(3x^3-x^2)}{-12x^2+7x-1}$
 $\frac{-(-12x^2+4x)}{3x-1}$
 $\frac{-(3x-1)}{0}$

5a) $\ln \sqrt{x} \cdot \frac{\sqrt{2}}{x} = \ln x \sqrt{x}$ $\sqrt{2} = x^2$ $x = 2^{\frac{1}{4}}$

5b) $t^2-t-6=0$ $t = \frac{1}{2} \pm \sqrt{\frac{1}{4}+6}$ $x = \ln 3$



$$\sin 2v = 2 \cdot \frac{1}{\sqrt{5}} \cdot \frac{2}{\sqrt{5}} = \frac{4}{5}$$

6c/ $8 \sin v = 8 \sin\left(\frac{\pi}{2} - 2v\right) \Leftrightarrow v = \frac{\pi}{2} - 2v + n2\pi$

el. $v = \pi - \left(\frac{\pi}{2} - 2v\right) + n2\pi \Leftrightarrow v = \frac{\pi}{6} + n\frac{2\pi}{3}$ el.

$v = -\frac{\pi}{2} - n2\pi$

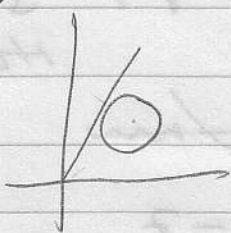


7a/ $3(3+2x) + 2x + 1 = 0 \quad 8x = -10 \quad x = -\frac{5}{4}$

$y = \frac{1}{2}$

7b/ $(x + \frac{1}{2})^2 + 4(y - \frac{1}{4})^2 = 1 + \frac{1}{4} + \frac{1}{4} = \frac{3}{2}$

7c/



$(x-1)^2 + (2x-1)^2 = r^2 \quad 5x^2 - 6x + 2 = r^2$

$x = \frac{3}{5} \pm \sqrt{\frac{9}{25} + \frac{r^2 - 2}{5}} \quad 5r^2 = 1$

8a/ $f'(x) = \frac{4x(x^2+1) \cdot x - (x^2+1)^2}{x^2} = \frac{(x^2+1)(3x^2-1)}{x^2}$

$f'(1) = 4$

tgt $y - 4 = 4(x - 1) \quad y = 4x$

norm $y - 4 = -\frac{1}{4}(x - 1) \quad y = -\frac{x}{4} + \frac{17}{4}$

8b/ $x = \pm 1/\sqrt{3}$