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Nombre del tema: Derivadas

Parcial: 1

Nombre de la Materia: Bioma temáticas

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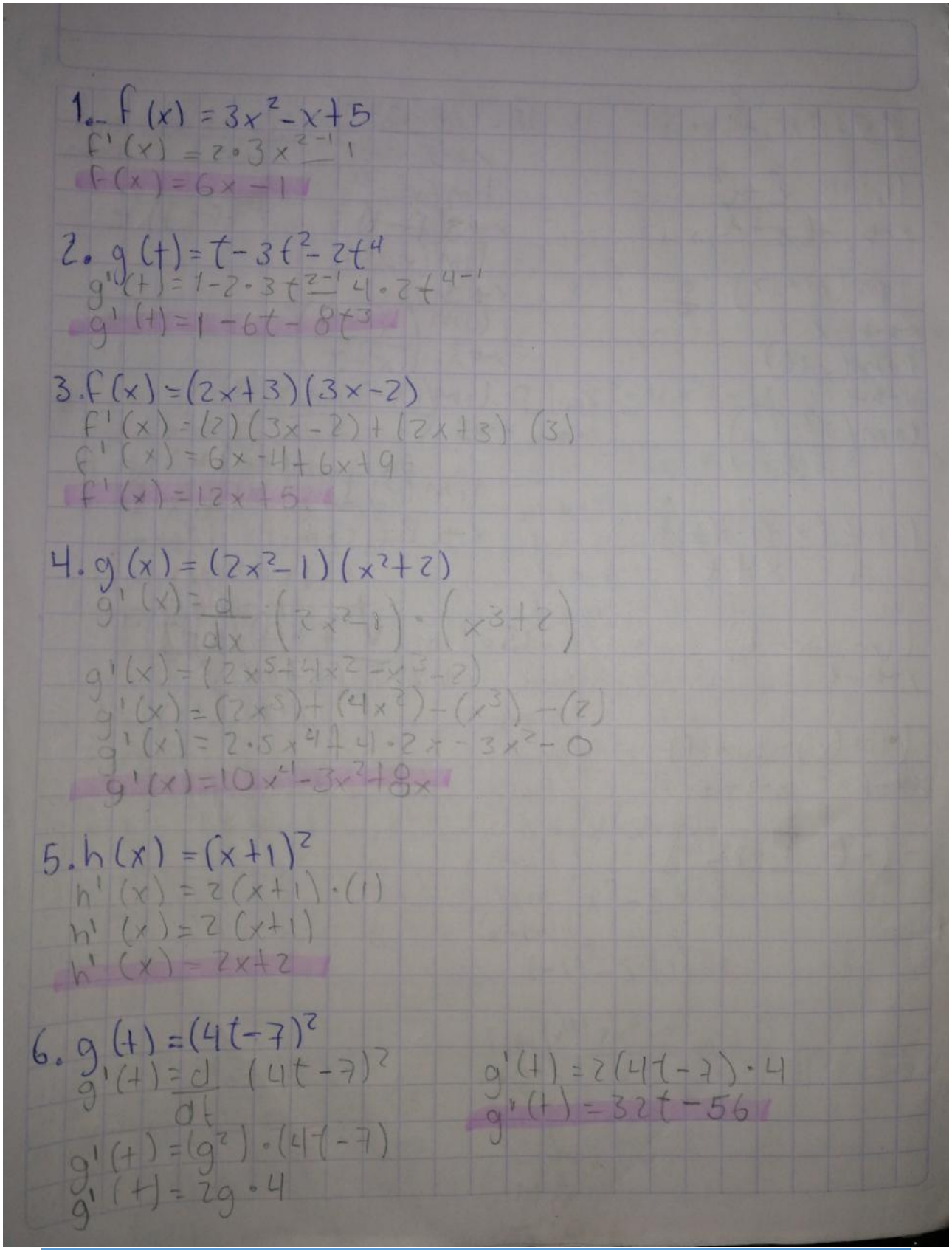
Nombre de la Licenciatura: Medicina humana

Fecha de elaboración: 19 de marzo de 2023



1. $f(x) = 3x^2 - x + 5$

$f'(x) = 2 \cdot 3x^{2-1} - 1$

$f(x) = 6x - 1$

2. $g(t) = t - 3t^2 - 2t^4$

$g'(t) = 1 - 2 \cdot 3t^{2-1} - 4 \cdot 2t^{4-1}$

$g'(t) = 1 - 6t - 8t^3$

3. $f(x) = (2x+3)(3x-2)$

$f'(x) = (2)(3x-2) + (2x+3)(3)$

$f'(x) = 6x - 4 + 6x + 9$

$f'(x) = 12x + 5$

4. $g(x) = (2x^2 - 1)(x^3 + 2)$

$g'(x) = \frac{d}{dx}(2x^2 - 1) \cdot (x^3 + 2)$

$g'(x) = (2x^5 + 4x^2 - x^3 - 2)$

$g'(x) = (2x^5) + (4x^2) - (x^3) - (2)$

$g'(x) = 2 \cdot 5x^4 + 4 \cdot 2x - 3x^2 - 0$

$g'(x) = 10x^4 - 3x^2 + 8x$

5. $h(x) = (x+1)^2$

$h'(x) = 2(x+1) \cdot (1)$

$h'(x) = 2(x+1)$

$h'(x) = 2x + 2$

6. $g(t) = (4t-7)^2$

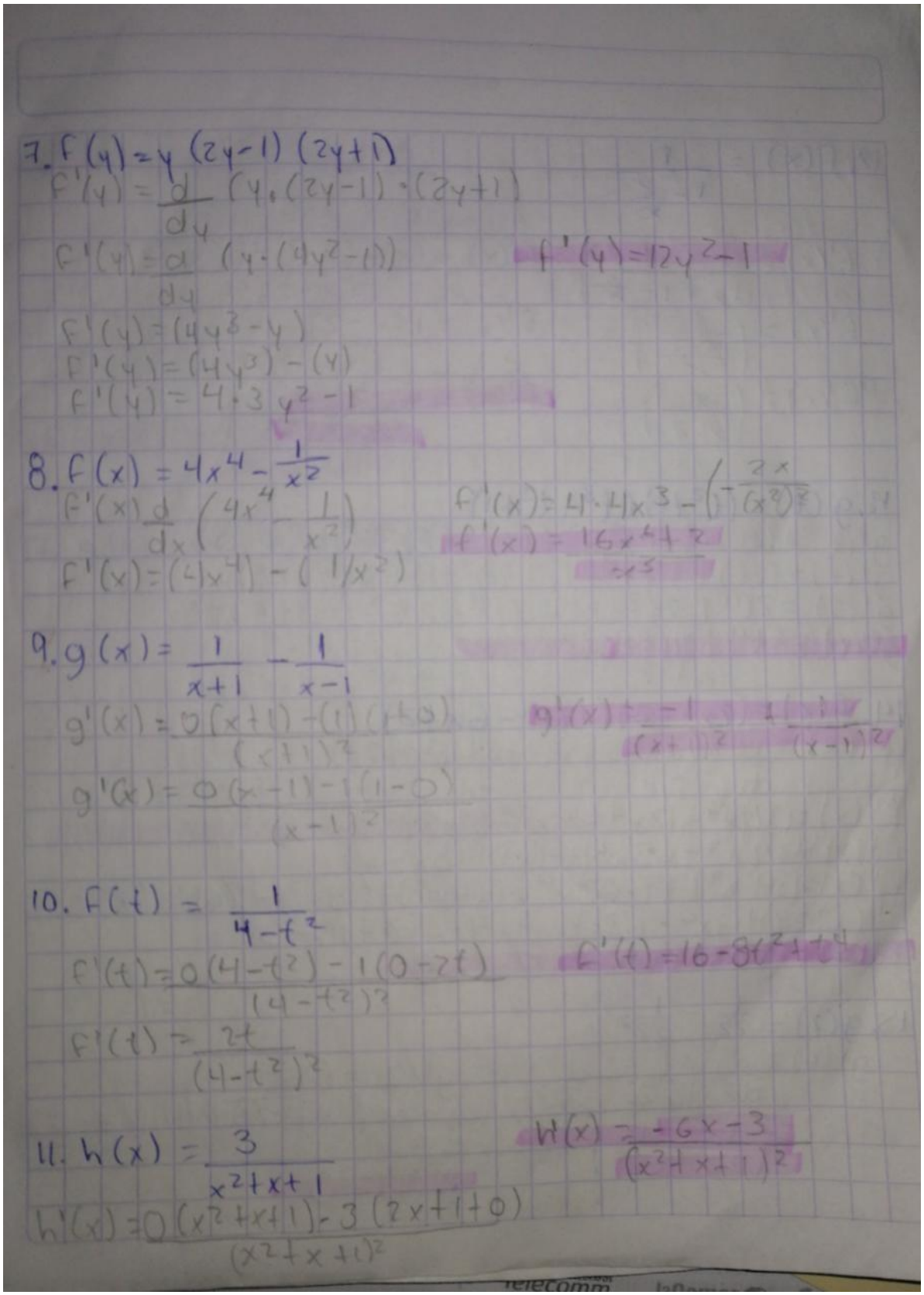
$g'(t) = \frac{d}{dt}(4t-7)^2$

$g'(t) = (g^2) \cdot (4 \cdot (-7))$

$g'(t) = 2g \cdot 4$

$g'(t) = 2(4 \cdot (-7)) \cdot 4$

$g'(t) = 32t - 56$



7. $f(y) = y(2y-1)(2y+1)$

$f'(y) = \frac{d}{dy}(y \cdot (2y-1) \cdot (2y+1))$

$f'(y) = \frac{d}{dy}(y \cdot (4y^2-1))$

$f'(y) = (4y^3 - y)$

$f'(y) = (4y^3) - (y)$

$f'(y) = 4 \cdot 3y^2 - 1$

$f'(y) = 12y^2 - 1$

8. $f(x) = 4x^4 - \frac{1}{x^2}$

$f'(x) \frac{d}{dx}\left(4x^4 - \frac{1}{x^2}\right)$

$f'(x) = (4)x^4 - (1/x^2)$

$f'(x) = 4 \cdot 4x^3 - \left(-\frac{2x}{(x^2)^2}\right)$

$f'(x) = 16x^4 + 2$

9. $g(x) = \frac{1}{x+1} - \frac{1}{x-1}$

$g'(x) = \frac{0(x+1) - (1)(1+0)}{(x+1)^2}$

$g'(x) = \frac{0(x-1) - 1(1-0)}{(x-1)^2}$

$g'(x) = \frac{-1}{(x+1)^2} + \frac{1}{(x-1)^2}$

10. $F(t) = \frac{1}{4-t^2}$

$f'(t) = \frac{0(4-t^2) - 1(0-2t)}{(4-t^2)^2}$

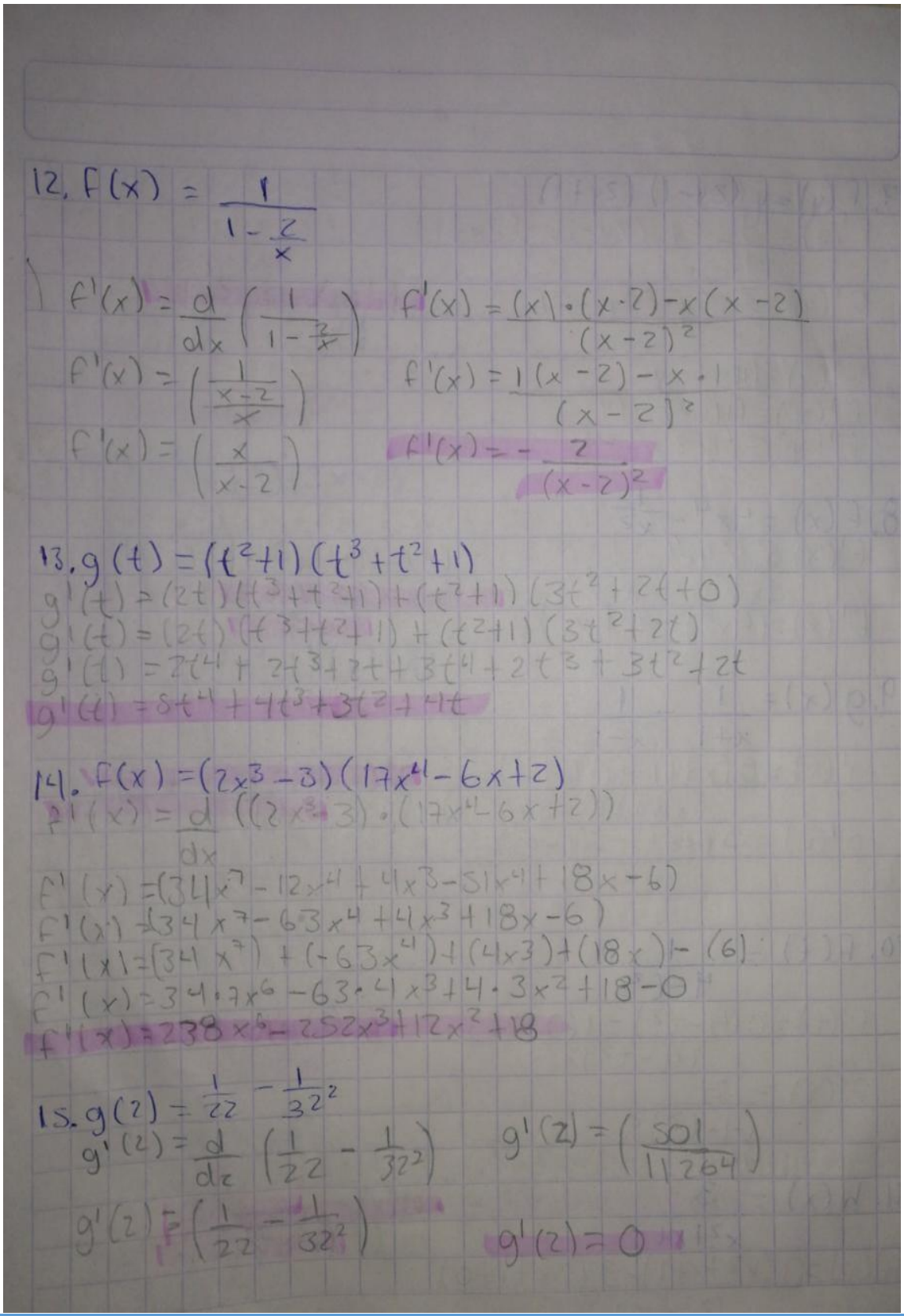
$f'(t) = \frac{2t}{(4-t^2)^2}$

$f'(t) = 16 - 8t^2 + t^4$

11. $h(x) = \frac{3}{x^2+x+1}$

$h'(x) = \frac{0(x^2+x+1) - 3(2x+1+0)}{(x^2+x+1)^2}$

$H(x) = \frac{-6x-3}{(x^2+x+1)^2}$


12. $f(x) = \frac{1}{1-\frac{2}{x}}$
$f'(x) = \frac{d}{dx}\left(\frac{1}{1-\frac{2}{x}}\right)$
$f'(x) = \left(\frac{1}{\frac{x-2}{x}}\right)$
$f'(x) = \left(\frac{x}{x-2}\right)$
$f'(x) = \frac{(x)\cdot(x-2)-x(x-2)}{(x-2)^2}$
$f'(x) = \frac{1(x-2)-x\cdot 1}{(x-2)^2}$
$f'(x) = -\frac{2}{(x-2)^2}$
13. $g(t) = (t^2+1)(t^3+t^2+1)$
$g'(t) = (2t)(t^3+t^2+1)+(t^2+1)(3t^2+2t+0)$
$g'(t) = (2t)(t^3+t^2+1)+(t^2+1)(3t^2+2t)$
$g'(t) = 2t^4+2t^3+2t+3t^4+2t^3+3t^2+2t$
$g'(t) = 5t^4+4t^3+3t^2+4t$
14. $f(x) = (2x^3-3)(17x^4-6x+2)$
$f'(x) = \frac{d}{dx}((2x^3-3)\cdot(17x^4-6x+2))$
$f'(x) = (34x^7-12x^4+4x^3-51x^4+18x-6)$
$f'(x) = (34x^7-63x^4+4x^3+18x-6)$
$f'(x) = (34x^7)+(-63x^4)+(4x^3)+(18x)-(6)$
$f'(x) = 34\cdot 7x^6-63\cdot 4x^3+4\cdot 3x^2+18-0$
$f'(x) = 238x^6-252x^3+12x^2+18$
15. $g(z) = \frac{1}{22}-\frac{1}{32^2}$
$g'(z) = \frac{d}{dz}\left(\frac{1}{22}-\frac{1}{32^2}\right)$
$g'(z) = \left(\frac{1}{22}-\frac{1}{32^2}\right)$
$g'(z) = \left(\frac{501}{11264}\right)$
$g'(z) = 0$

16. $f(x) = \frac{2x^3 - 3x^2 + 4x - 5}{x^2}$

$f'(x) = \frac{d}{dx}\left(\frac{2x^3 - 3x^2 + 4x - 6}{x^2}\right)$

$f'(x) = \left(\frac{2x^3}{x^2} - \frac{3x^2}{x^2} + \frac{4x}{x^2} - \frac{5x}{x^2}\right)$

$f'(x) = (2x) - (3) + \left(\frac{4}{x}\right) - \left(\frac{5}{x^2}\right)$

$f'(x) = 2 - \frac{4}{x^2} + \frac{10}{x^3}$

17. $g(y) = 2y(3y^2 - 1)(y^2 + 2y + 3)$

$g'(y) = \frac{d}{dx}(2y(3y^2 + 1)(y^2 + 2y + 3))$

$g'(y) = ((6y^3 - 2y)(y^2 + 2y + 3))$

$g'(y) = (6y^5 + 12y^4 + 18y^3 - 2y^3 - 4y^2 - 6y)$

$g'(y) = (y^5 + 12y^4 + 16y^3 - 4y^2 - 6y)$

$g'(y) = (6y^5) + (12y^4) + (16y^3) + (-4y^2) + (-6y)$

$g'(y) = 6 \cdot 5y^4 + 12 \cdot 4y^3 + 16 \cdot 3y^2 - 4 \cdot 2y - 6$

$g'(y) = 30y^4 + 48y^3 + 48y^2 - 8y - 6$

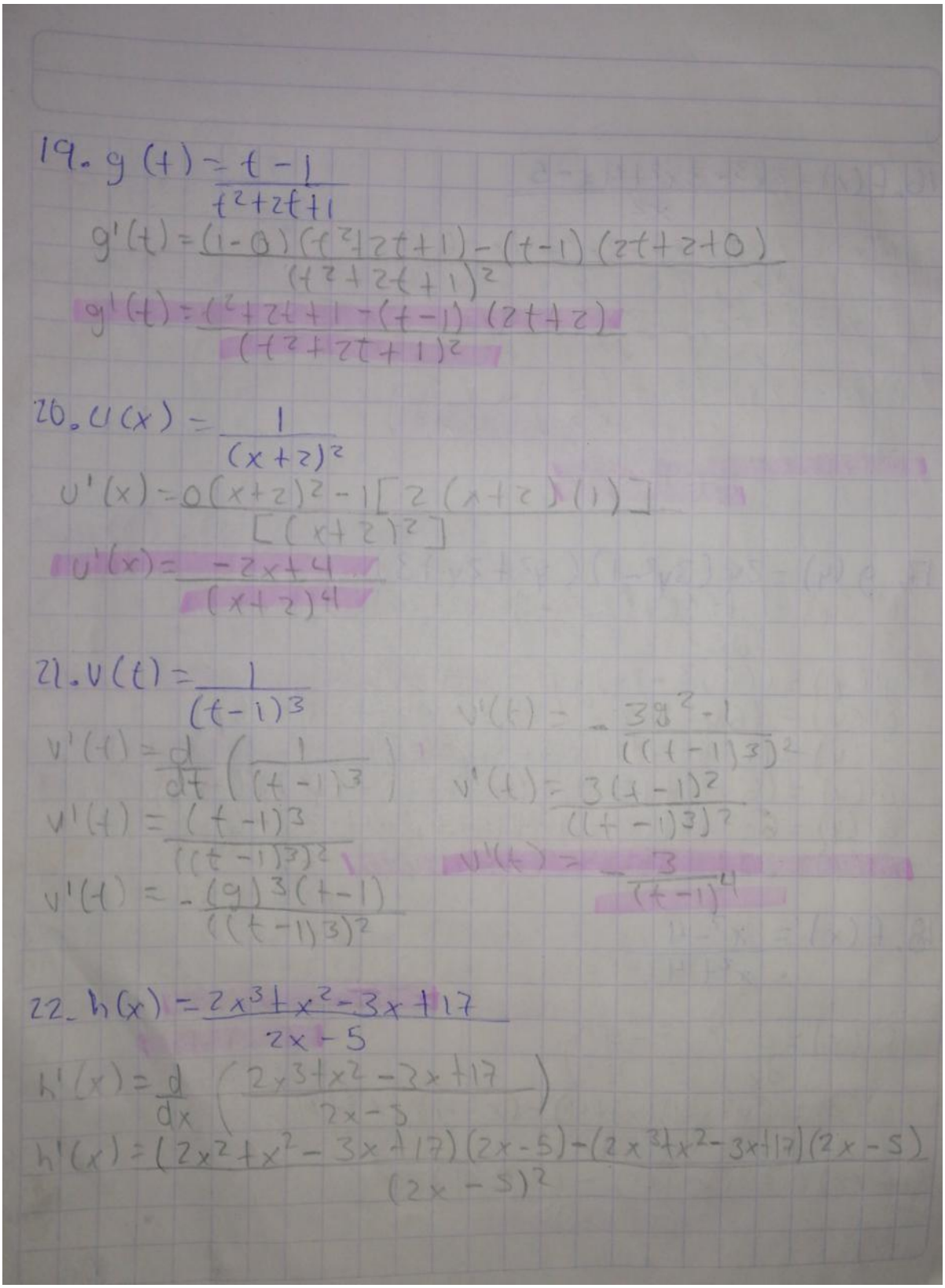
18. $f(x) = \frac{x^2 - 4}{x^2 + 4}$

$f'(x) = \frac{16x}{(x^2 + 4)^2}$

$f'(x) = \frac{d}{dx}\left(\frac{x^2 - 4}{x^2 + 4}\right)$

$f'(x) = \frac{(x^2 - 4)(x^2 + 4) - (x^2 - 4)(x^2 + 4)}{(x^2 + 4)^2}$

$f'(x) = \frac{2x(x^2 + 4) - (x^2 - 4)2x}{(x^2 + 4)^2}$


19. $g(t) = \frac{t-1}{t^2+2t+1}$
$g'(t) = \frac{(1-0)(t^2+2t+1)-(t-1)(2t+2+0)}{(t^2+2t+1)^2}$
$g'(t) = \frac{t^2+2t+1-(t-1)(2t+2)}{(t^2+2t+1)^2}$
20. $v(x) = \frac{1}{(x+2)^2}$
$v'(x) = \frac{0(x+2)^2-1[2(x+2)(1)]}{[(x+2)^2]}$
$v'(x) = \frac{-2x+4}{(x+2)^4}$
21. $v(t) = \frac{1}{(t-1)^3}$
$v'(t) = \frac{d}{dt}\left(\frac{1}{(t-1)^3}\right)$
$v'(t) = \frac{(t-1)^3}{((t-1)^3)^2}$
$v'(t) = -\frac{(9)^3(t-1)}{((t-1)^3)^2}$
$v'(t) = -\frac{3g^2-1}{((t-1)^3)^2}$
$v'(t) = \frac{3(t-1)^2}{((t-1)^3)^2}$
$v'(t) = -\frac{3}{(t-1)^4}$
22. $h(x) = \frac{2x^3+x^2-3x+17}{2x-5}$
$h'(x) = \frac{d}{dx}\left(\frac{2x^3+x^2-3x+17}{2x-5}\right)$
$h'(x) = \frac{(2x^2+x^2-3x+17)(2x-5)-(2x^3+x^2-3x+17)(2x-5)}{(2x-5)^2}$

$$h'(x) = \frac{(2\cdot 3x^2+2x-3)(2x-5)-(2x^3+x^2-3x+17)\times 2}{(2x-5)^2}$$

$$h'(x) = \frac{8x^3-28x^2-10x-19}{(2x-5)^2}$$

23. $g(x) = \frac{3x}{x^3+7x-5}$

$$g'(x) = \frac{d}{dx}\left(\frac{3x}{x^3+7x-5}\right)$$

$$g'(x) = \frac{(3x)(x^3+7x-5)-3x(x^3+7x-5)}{(x^3+7x-5)^2}$$

$$g'(x) = \frac{3(x^3+7x-5)-3x(3x^2+7)}{(x^3+7x-5)}$$

$$g'(x) = \frac{-6x^3+\ldots}{(x^3+7x-5)^2}$$

24. $f(t) = \frac{1}{(1+\frac{1}{t})^2}$

$$f'(t) = \frac{d}{dt}\left(\frac{1}{(1+\frac{1}{t})^2}\right)$$

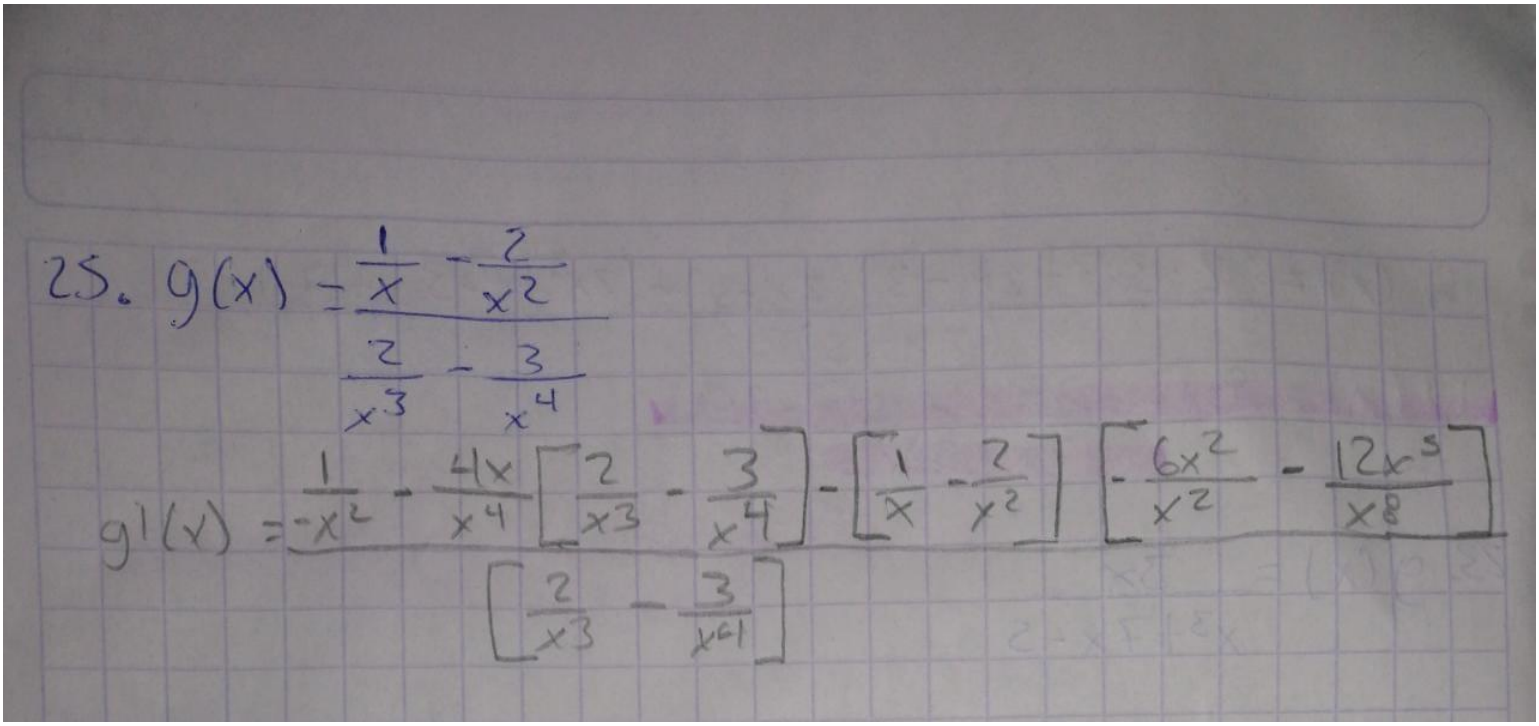
$$f'(t) = \left(\frac{1}{\frac{(t+1)^2}{t^2}}\right)$$

$$f'(t) = \left(\frac{t^2}{(t+1)^2}\right)$$

$$f'(t) = \frac{(t^2)'(t+1)^2-t^2(t+1)^2}{((t+1)^2)^2}$$

$$f'(t) = \frac{2t((t+1)^2-t^2\cdot 2(t+1)}{((t+1)^2)^2}$$

$$f'(t) = \frac{2t}{(t+1)^3}$$


25. $g(x) = \frac{\frac{1}{x} - \frac{2}{x^2}}{\frac{2}{x^3} - \frac{3}{x^4}}$
$g'(x) = \frac{\frac{1}{-x^2} - \frac{4x}{x^4}\left[\frac{2}{x3} - \frac{3}{x^4}\right] - \left[\frac{1}{x} - \frac{2}{x^2}\right]\left[-\frac{6x^2}{x^2} - \frac{12x^3}{x^8}\right]}{\left[\frac{2}{x3} - \frac{3}{x^{61}}\right]}$