



**REAL NUMBERS, POLYNOMIALS  
AND FRACTIONS TEST - 4º ESO**



**Exercise 1: (1.25 point)** Work out  $\frac{\log_9 875 - \log_9 7}{\log_9 25 + \log_9 625} =$

**Exercise 2: (1 point)** Solve and factorize the equation  $x^6 - 13x^4 + 36x^2 = 0$

**Exercise 3: (1.75 points)** Rationalize the following expressions:

a) (0.25)  $\frac{12}{\sqrt{3}} =$

b) (0.5)  $\frac{35}{\sqrt[4]{5}} =$

c) (1)  $\frac{\sqrt{10} + \sqrt{2}}{\sqrt{10} - \sqrt{2}} =$

**Exercise 4: (2.25 points)** Work out the value of the following expressions and simplify if possible:

a)  $\frac{x-5}{x^2+4x-21} - \frac{2x-1}{x+7} + \frac{3x}{x-3} =$  (1.25)

b)  $\frac{x^2-1}{x^2+6x+5} \cdot \frac{3x-3}{x^2+10x+25} =$  (1)

**Exercise 5: (1 point)** Study the following unions and intersections of intervals and **write them as inequalities** too:

a)  $[-2, 0) \cap (-3, 7] =$

b)  $(-\infty, 2] \cup (2, 5] =$

**Exercise 6: (2.75 points)** Work out, express as a single radical and simplify if possible:

a)  $5\sqrt{448} - \sqrt{405} - 2\sqrt{500} - \sqrt{7} =$  (1)

b)  $\sqrt[6]{x^{-5}} \cdot \sqrt[4]{x^3} \cdot \sqrt{x^{-1}} =$  (0.75)

c)  $\frac{\sqrt[3]{a^{-2} \cdot b^5} \cdot \sqrt{a}}{\sqrt[5]{a^2 \cdot b^{-3}}} =$  (1)

