



EXAMEN 1ª EVALUACIÓN  
MATEMÁTICAS

3º ESO B  
CURSO 2009-2010



Nombre: SOLUCIONES

1. Calcular, simplificando en todos los pasos: (2,5 puntos)

$$\frac{17}{9} - \frac{15}{5} + \frac{4}{3} \cdot \left( \frac{1}{5} + \frac{2}{3} - \frac{1}{15} \right) + \frac{14}{3} \cdot \frac{8}{16} = \frac{17}{9} - 3 + \frac{4}{3} \cdot \frac{12}{15} + \frac{7 \cdot 2}{3} \cdot \frac{1}{2} = \frac{17}{9} - 3 + \frac{4}{3} \cdot \frac{3 \cdot 5}{4 \cdot 3} + \frac{7}{3} =$$

$$= \frac{17}{9} - 3 + \frac{5}{3} + \frac{7}{3} = \frac{17}{9} - 3 + \frac{12}{3} = \frac{17}{9} - 3 + 4 = \frac{17}{9} + 1 = \boxed{\frac{26}{9}} \quad 0.75/ \quad \text{TOTAL: } \boxed{2,5} \quad (1.25 + 1.25)$$

$$\frac{1}{2} + \frac{3}{5} : \frac{2}{3} - 4 = \frac{1}{2} + \frac{3 \cdot 3}{5 \cdot 2} - 4 = \frac{1}{2} + \frac{9}{10} - 4 = \frac{-26}{10} = -\frac{13}{5} = -\frac{13 \cdot 15}{17 \cdot 5} = -\frac{13 \cdot 3}{17 \cdot 8} = \boxed{-\frac{39}{17}}$$

2. Calcular, indicando todos los pasos: (1,5 puntos) (dejar el resultado en forma racional)

$$(-2)^5 = \boxed{-32} \quad 0.15/ \quad 2^{-5} = \frac{1}{2^5} = \frac{1}{32} \quad 0.15/ \quad (-2)^{-5} = \frac{1}{(-2)^5} = \frac{1}{-32} \quad 0.15/$$

$$(-1)^{-10} = \frac{1}{(-1)^{10}} = \frac{1}{1} = \boxed{1} \quad 0.15/ \quad 0,1^{-1} = \frac{1}{0,1} = \frac{1}{1/10} = \frac{10}{1} = \boxed{10} \quad 0.15/ \quad \left(\frac{5}{2}\right)^{-3} = \left(\frac{2}{5}\right)^3 = \frac{8}{125} \quad 0.15/ \quad \text{TOTAL: } \boxed{1,5}$$

$$\left(-\frac{5}{2}\right)^3 = -\frac{5^3}{2^3} = \frac{-125}{8} \quad 0.15/ \quad \left(-\frac{5}{2}\right)^{-3} = \left(-\frac{2}{5}\right)^3 = \frac{-8}{125} \quad 0.15/ \quad \frac{\left(\frac{2}{5}\right)^{-1}}{\left(\frac{2}{5}\right)^2} = \left(\frac{2}{5}\right)^{-3} = \left(\frac{5}{2}\right)^3 = \frac{125}{8} \quad 0.15/$$

3. Pasar a potencia única, aplicando en todo momento las propiedades de las potencias: (2,5 puntos)

$$\frac{5^3}{(5^{-2})^3 \cdot 5} = \frac{5^3}{5^{-6} \cdot 5} = \frac{5^3}{5^{-5}} = \boxed{5^8} \quad 0.5/$$

$$\left[\frac{(-27)^2}{9^3}\right]^{-2} = \left[\frac{(3^3)^2}{(3^2)^3}\right]^{-2} = \left(\frac{3^6}{3^6}\right)^{-2} = 1^{-2} = \boxed{1} \quad 1/$$

$$\frac{2^5 \cdot 2^{-2} \cdot 9 \cdot 3^{-4}}{2^{-2} \cdot (2^2)^2 \cdot 3 \cdot 3^{-3}} = \frac{2^5 \cdot 2^{-2} \cdot 3^2 \cdot 3^{-4}}{2^{-2} \cdot 2^4 \cdot 3 \cdot 3^{-3}} = \frac{2^3 \cdot 3^{-2}}{2^2 \cdot 3^{-2}} = \boxed{2} \quad 1/$$

TOTAL:  $\boxed{2,5}$

