DIVISIBILITY, INTEGERS, POWERS AND ROOTS TEST - 2º ESO

Exercise 1: **(1 point)** Fill in the gaps in this pyramid knowing that each cell can be found as the sum of the two cells directly below

		-9		
	3	-12		
-1	4	-16		
-8	7	-3	-13	
-3	-5	12	-15	2

Exercise 2: **(0.75 points)** Alexander the Great was born on the year 356 BC and died on the year 323 BC. How old was he when he died? He was 33 years old

Exercise 3: **(1 point)** Work out:

a) $\left(\frac{3}{5}\right)^{-3} = \frac{125}{27}$ b) $7^{-1} = \frac{1}{7}$ c) $(-2)^6 = 64$ d) $-3^4 = -81$

Exercise 4: **(2 points)** Work out the value of the following expressions:

a) $(5^2 \cdot 5^4)^{-3} = \frac{1}{5^{18}}$

b) $u^{-5} \cdot u^6 : u^{-7} = u^8$

c) $(a^{10} \cdot a^4) : (a^{12} : a^{-2}) = 1$

d) $(x^{-4} \cdot x^{-1}) : (x^8 \cdot x^{-3}) = \frac{1}{x^{10}}$

Exercise 5: **(1.25 points)** Work out the value of the following expressions:

a) $\frac{a^6 \cdot b^{-9} \cdot a^{-7}}{a^{-2} \cdot b^{-4} \cdot b^6} = \frac{a}{b^{11}}$

b) $\frac{3^5 \cdot 12^{-2} \cdot 2^4}{9^{-3} \cdot 2^{-1}} = 2 \cdot 3^9$

Exercise 6: **(1.5 points)** Work out:

a) $\sqrt{7056000000} = 84000$ b) $\sqrt[5]{\frac{x^{15} \cdot y^{-5}}{z^{-20}}} = \frac{x^3 z^4}{y}$ c) $\sqrt[4]{8100000000} = 300$

Exercise 7: **(1 point)** I want to prepare Halloween cookies for all the five hundred and eighty-eight students in my school. I have an oven with three square trays that I can use at the same time. How many cookies do I have to place on the side of each tray so I only have to bake once? 14 cookies

Exercise 8: **(1.5 points)** Work out the value of the following expressions:

a) $5 - 3 \cdot 2^3 - 2 \cdot \sqrt{8+1} + (-2)^2 = -21$

b) $\left(\sqrt{81} - \sqrt{49}\right)^3 - \sqrt{9} \cdot \sqrt[3]{8} : (-1) - 4^2 = -2$