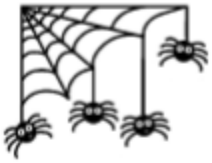

DIVISIBILITY, INTEGERS, POWERS AND ROOTS TEST - 2° ESO

Exercise 1: **(1.5 points)** Work out:

a) lcm $(98,91) = 1274$ b) hcf $(165,264) = 33$ c) hcf $(81,64) = 1$

Exercise 2: **(0.75 points)** A seagull is spending her morning soaring through the sky. Initially she is flying at an altitude of thirty-seven meters and then she goes down twenty-one meters and stays there for a while. After a few minutes she finds an upwards air current and elevates another thirteen meters. But she is getting tired and finally she goes down thirty meters. Where's the seagull now?

The seagull is at -1 meters, so she must be diving in the sea for food.

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

a) $-2^4 = -16$ b) $\left(\frac{7}{3}\right)^{-2} = \frac{9}{49}$ c) $(-1)^{18} = 1$ d) $5^{-1} = \frac{1}{5}$

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

a) $(5^2)^{-3} : 5^4 = 5^{-10} = \frac{1}{5^{10}}$ b) $a^{-3} \cdot a^7 : a^{-4} = a^8$

c) $(2^9 \cdot 2^5) : (2^{20} : 2^6) = 2^0 = 1$ d) $(x^{-2} \cdot x) : (x^{-1} \cdot x^{-3}) = x^3$

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

a) $\frac{x^5 \cdot y^{-8} \cdot x^{10}}{x^{-3} \cdot y^{-5} \cdot x^7} = \frac{x^{11}}{y^3}$ b) $\frac{14^{-2} \cdot 2^5 \cdot 7^3}{49^{-3} \cdot 7^{-1} \cdot 2^7} = \frac{7^8}{2^4}$

Exercise 6: **(1 point)** They say that it's going to be a very cold winter, so we are building a square ice skate rink in the high school courtyard. If the area of the rink is 1764 m^2

a) Find the length of each side 42 meters

b) A meter of wood fence costs 2.5€. What will the total price be? 420€

Exercise 7: **(1.25 points)** Work out:

a) $\sqrt{5760000} = 2400$

b) $\sqrt[3]{\frac{x^{-9} \cdot y^{12}}{z^{-6}}} = \frac{z^2 y^4}{x^3}$

c) $\sqrt[5]{320\,000\,000\,000} = 200$

Exercise 8: **(1.25 points)** Work out the value of the following expressions:

a) $7 - 3 \cdot \sqrt{25} - 2 \cdot 3^2 + (-1)^3 = -27$

b) $2^3 \cdot 3^2 - \left(\sqrt{36} - \sqrt{16}\right)^3 - \sqrt{51-2} : (-7) = 65$