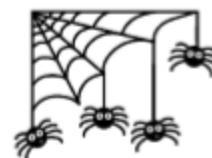




# REAL NUMBERS, POWERS AND ROOTS TEST - 3º ESO



**Exercise 1: (1 point)** Classify the following numbers:

$5$

$\sqrt{7}$

$12/5$

$\sqrt[3]{-8}$

$\sqrt{-25}$

**Exercise 2: (3.25 points)** Work out, express as radicals if possible and simplify:

a)  $\sqrt{5^3} \cdot \sqrt[3]{5^4} \cdot \sqrt[4]{5^7} =$  (0.75)

b)  $\frac{\sqrt{2^{-5} \cdot 3^3}}{\sqrt[7]{2^8 \cdot 3^{-2}}} =$  (0.75)

c)  $7^{5/2} \cdot 7^{-3/4} : 7^{-7/3} =$  (0.5)

d)  $\sqrt{675} + 3\sqrt{1323} - 5\sqrt{243} =$  (0.75)

e)  $\frac{a^{-6} \cdot b^3 \cdot b^{-8} \cdot a^{-4}}{a \cdot b^5 \cdot a^{-2} \cdot b^7} =$  (0.5)

**Exercise 3: (1 point)** The distance between Winterfell and King's Landing is estimated to be of 2333.55 km.

- a) Find the percentage error if I round it to 2300 km  
b) Do you think that's a good approximation?

**Exercise 4: (1 point)** Arya wants to travel from Winterfell to King's Landing to finish her list. She decides her journey will have three legs. First she travels for one third of the distance. Then she travels two fifths of the remaining distance. If she still has 936 km to go, what's the distance between Winterfell and King's Landing? (You can't cheat and answer the distance in the previous exercise)

**Exercise 5: (1.5 points)** Study the following unions and intersections of intervals. Express them as inequalities too:

a)  $(-\infty, 3] \cup [2, 7) =$

b)  $(-5, -1] \cap (-4, 1] =$

c)  $[3, 7] \cap [7, 12] =$

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

a)  $3.14 \cdot 10^2 - 4.21 \cdot 10^4 + 8.29 \cdot 10^3 =$

b)  $2.57 \cdot 10^{-7} - 3.4 \cdot 10^{-8} + 9.28 \cdot 10^{-5} =$

c)  $(7.26 \cdot 10^{-3}) \cdot (3.97 \cdot 10^{-6}) =$

d)  $(2.71 \cdot 10^{-7}) : (7.29 \cdot 10^{-13}) =$

**Exercise 7: (0.75 points)** Simplify:

a)  $\sqrt{78400} =$

b)  $\sqrt[7]{\frac{x^{-21}y^{45}z^{118}}{w^{17}}} =$

