The Dragon Academy G11 Functions and Applications Term 3 Test 1

June 26, 2019

All questions have the same weight towards the final mark on this test.

- 1. (Ktica) Write the general expression of a quadratric function in standard form.
- 2. (Ktica) Write the formula that gives the solutions of a quadratic equation (the "quartic formula"). Use the same labels for the coefficients as in your answer to the previous question.
- 3. (KtiCa) Solve the following equation for x: $(x-2)^2 3 = 0$. How many solutions does it have?
- 4. (KtiCa) Solve the following equation for x: $(x-2)^2 + 2 = 0$. How many solutions does it have?
- 5. (Ktica) A quadratic function can be wrriten in three different forms. How are they called? Write three examples of quadratic functions each showcasing a different form.
- 6. (Ktica) Write the following quadratic function in standard form: f(x) = 3(x+4)(x-8)
- 7. (Ktica) Write the following quadratic function in vertex form: f(x) = 3(x+4)(x-8)
- 8. (KTca) We are told that a quadratic function g(x) has its zeros at x = 10 and x = -3 and also that g(0) = -15. Write the expression of g(x) in factor form.
- 9. (KticA) Determine the location of the maximum of the following parabola. What is the value of the function at that point? f(x) = -(x-7)(x+2)
- 10. (Ktica) Consider two numbers b and e.
 - (a) Write what it means b^{-e} . Apply it to the case 3^{-5}
 - (b) Write the following expression as a power: $\frac{1}{b^e}$. Apply your answer to the case $\frac{1}{7^2}$.
 - (c) Write the following expression as a single power $\frac{1}{2^{-3}}$
- 11. (Ktica) Write the following expressions as a single power.
 - a) $27^4 27^{-5}$ b) $\frac{2^3}{2^5}$ c) $(2^3)^5$ d) $(27 \cdot 56)^7$
- 12. (KtiCa) Write in the form of a radical and evaluate:
 - a) $100^{1/2}$ b) $49^{1/2}$ c) $(-125)^{1/3}$ d) $16^{0.25}$
- 13. (KtiCa) Write in power form. Using the fact that $6^5 = 7776$ when needed, evaluate those expressions without using your calculator. Make sure it is clear from your answer how you use that information in order to evaluate -that is, it's not ok to simply write the final solution.
 - a) $\sqrt[3]{27^4}$ b) $(\sqrt[3]{-216})^5$