MHF4U0 Final Exam Review #2 – Equations and Graphs

1. The following is a list of types of equations that we have encountered in this course.

(a) Classify each equation as an ***identity***, an ***equation to be solved*** for the unknown, an ***equation of a function*** or an ***equation of a relation***.

(b) Give a geometric (graphical) representation of each equation.

(c) For the equations that are identities, prove that the expression on the L.S. is ***equivalent*** to that on the R.S.

(d) For the equations of functions/relations, use the equation to find a point that lies on the graph of the function/relation. (Mark that point on the graph.)

(e) Solve the equations that are neither identities nor equations of functions/relations.

Equation	*Type of Equation*	*Geometric(Graphical) Representation*	*Proof/Solution/Evaluation to find Point on Graph*
$f(x) = x^3 - 2x$			
$x^2 + y^2 = 16$			
$f(x) = -(x-4)(x-1)(x+5)$			
$x^3 - 8x^2 - 3x + 90 = 0$			

$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$			
$4^{2x} = 5^{2x-1}$			
$\log_7(x+1) + \log_7(x-5) = 1$			
$2 \sin x \sec x - 2\sqrt{3} \sin x = 0$			
$\tan^2 x - \cos^2 x = \frac{1}{\cos^2 x} - 1 - \cos^2 x$			
$\frac{2\tan 2x - \sec^2 x \tan 2x}{2} = \tan x$			

2.

Match each equation with the most suitable graph. Explain your reasoning.

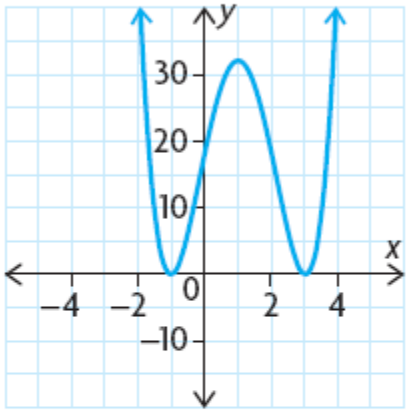
a) $f(x) = 2(x + 1)^2(x - 3)$

b) $f(x) = 2(x + 1)^2(x - 3)^2$

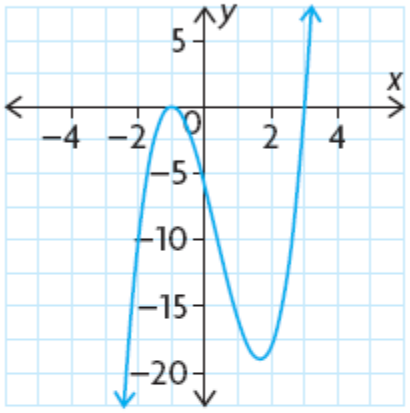
c) $f(x) = -2(x + 1)(x - 3)^2$

d) $f(x) = x(x + 1)(x - 3)(x - 5)$

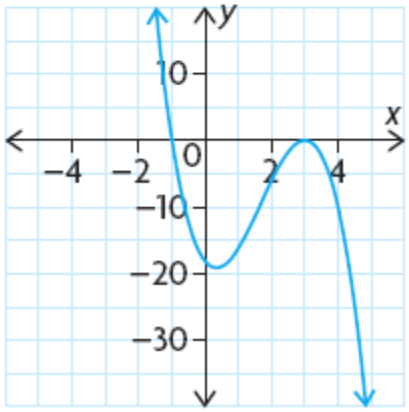
A



C



B



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