



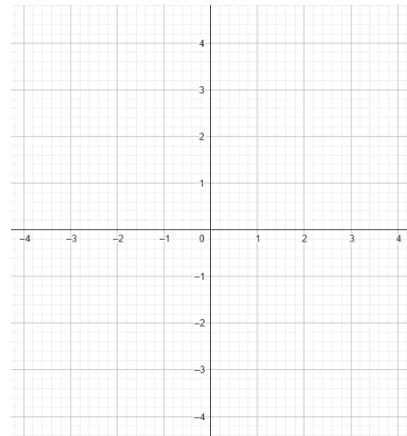
GUÍA EXTRAORDINARIO / (PENSAMIENTO MATEMÁTICO III) DICIEMBRE 2024

ELABORÓ: ACADEMIA DE PENSAMIENTO MATEMÁTICO

I. Realizar la gráfica de las siguientes funciones, evaluando la función en los valores dados

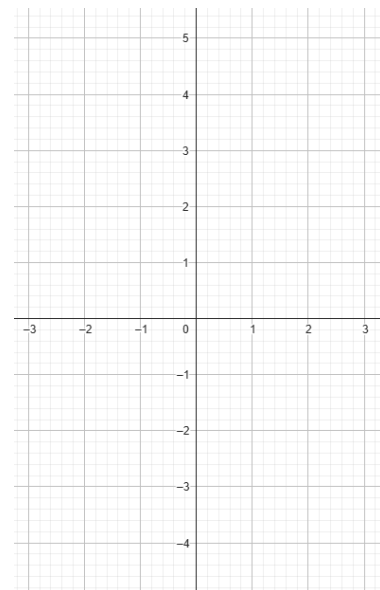
1. $f(x) = x + 2$

x	$f(x) = x + 2$
-2	$f(-2) =$
-1	$f(-1) =$
0	$f(0) =$
1	$f(1) =$
2	$f(2) =$



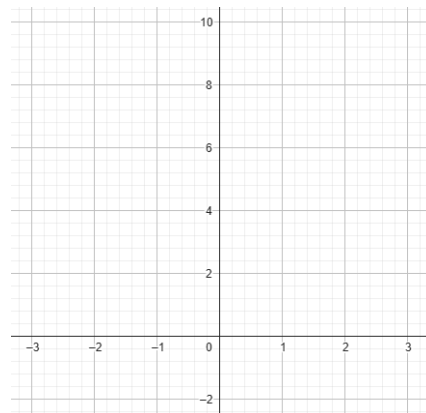
2. $f(x) = 1 - 2x$

x	$f(x) = 1 - 2x$
-2	$f(-2) =$
-1	$f(-1) =$
0	$f(0) =$
1	$f(1) =$
2	$f(2) =$



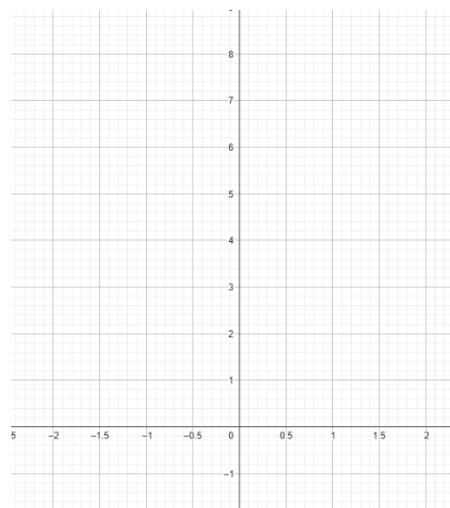
3. $f(x) = 2x^2$

x	$f(x) = 2x^2$
-2	$f(-2) =$
-1	$f(-1) =$
0	$f(0) =$
1	$f(1) =$
2	$f(2) =$



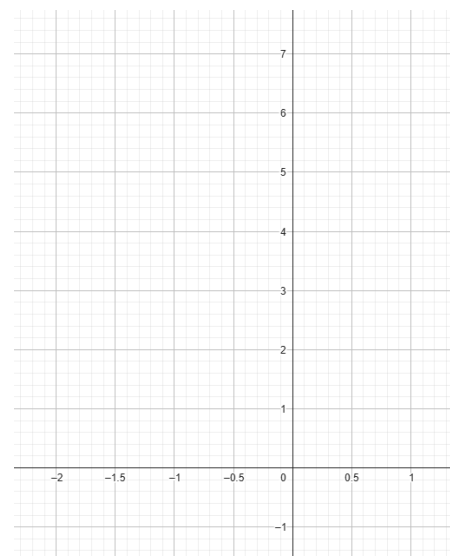
4. $f(x) = x^2 + 2x$

x	$f(x) = x^2 + 2x$
-2	$f(-2) =$
-1	$f(-1) =$
0	$f(0) =$
1	$f(1) =$
2	$f(2) =$



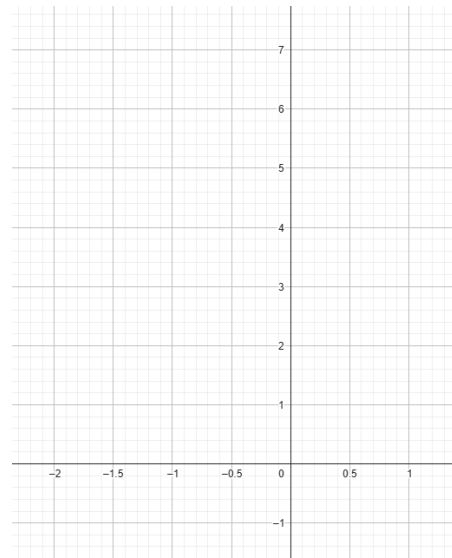
5. $f(x) = 3x^2 + 2x - 1$

x	$f(x) = 3x^2 + 2x - 1$
-2	$f(-2) =$
-1	$f(-1) =$
0	$f(0) =$
1	$f(1) =$



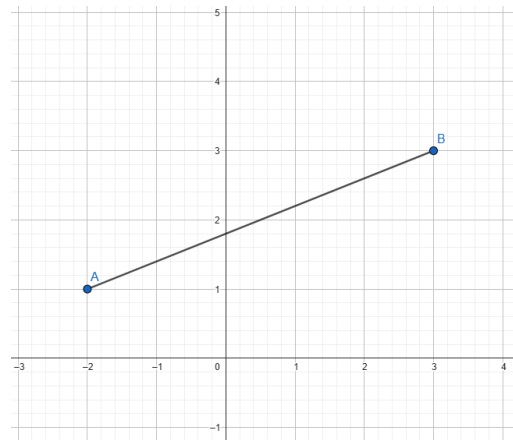
6. $f(x) = 3x^2 + 2x - 1$

x	$f(x) = 3x^2 + 2x - 1$
-2	$f(-2) =$
-1	$f(-1) =$
0	$f(0) =$
1	$f(1) =$

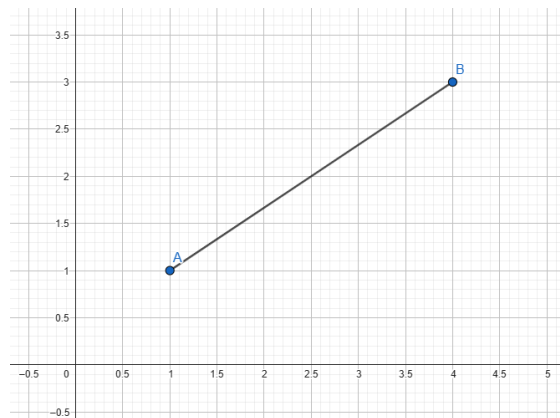


II. Calcular la pendiente de las siguientes rectas y si es necesario, graficar.

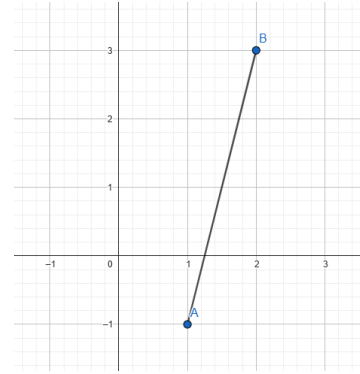
7. $m = \frac{y_2 - y_1}{x_2 - x_1} =$



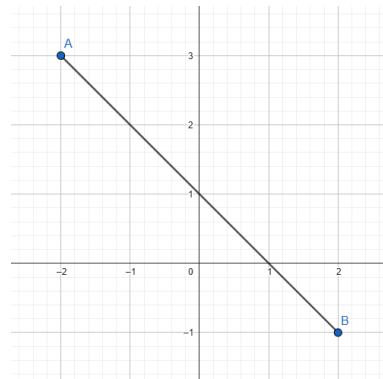
8. $m = \frac{y_2 - y_1}{x_2 - x_1} =$



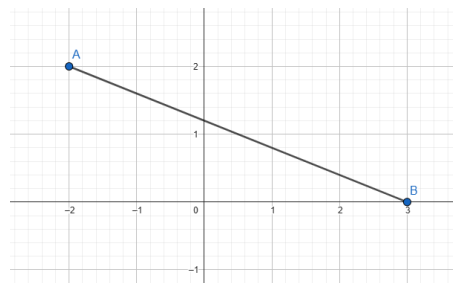
9. $m = \frac{y_2 - y_1}{x_2 - x_1} =$



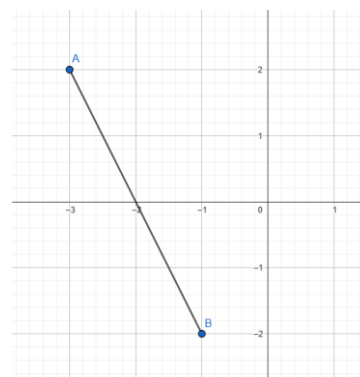
10. $m = \frac{y_2 - y_1}{x_2 - x_1} =$



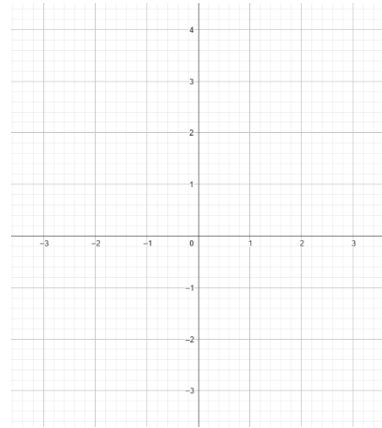
11. $m = \frac{y_2 - y_1}{x_2 - x_1} =$



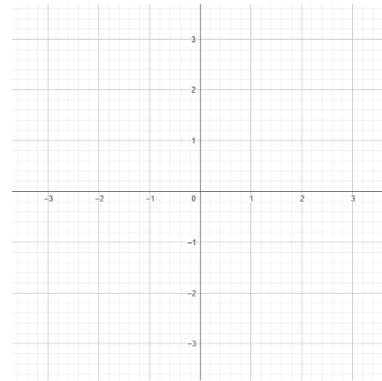
12. $m = \frac{y_2 - y_1}{x_2 - x_1} =$



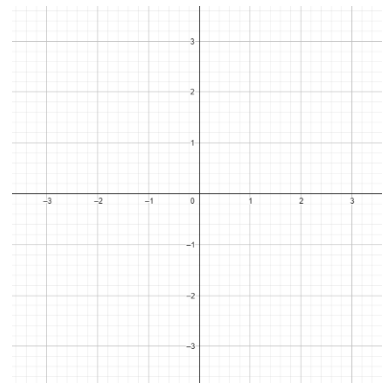
13. $y = 3x - 1$



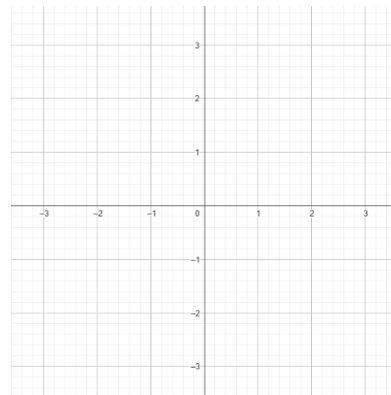
14. $y = 2x + 3$



15. $y = 2 - 4x$



16. $y = 1 - x$



III. Encuentra el límite de las siguientes funciones

17. $\lim_{x \rightarrow 0} (3x + 2) =$

18. $\lim_{x \rightarrow 2} \frac{6x-4}{x-2} =$

19. $\lim_{x \rightarrow 2} (2x + 3)(3x - 1) =$

20. $\lim_{x \rightarrow 2} \frac{2x-4}{4x-1} =$

21. $\lim_{x \rightarrow 2} \sqrt{2x - 4} =$

22. $\lim_{x \rightarrow 2} \frac{5}{2x^2} =$

IV. Calcula las derivadas de las siguientes funciones.

23. $f(x) = -x + 6$

24. $f(x) = 2x - 3$

25. $f(x) = -3x + 100$

26. $f(x) = 5x^{-2} - 3x$

27. $f(x) = -3x^2 - x + 6$

28. $f(x) = x^2 + 5x - 1$

29. $f(x) = 9x^3 - \frac{1}{2}x^2 + 6x$

30. $f(x) = \ln(x)$

31. $f(x) = \ln(x^2)$

32. $f(x) = \ln(3x^2)$

33. $f(x) = 4\ln(5x^2)$

34. $f(x) = 2\ln(5x^3)$

35. $f(x) = e^x$

36. $f(x) = e^{7x}$

37. $f(x) = e^{2x^5}$

38. $f(x) = e^{-4x^3}$

39. $f(x) = 2e^{3x^5}$

40. $f(x) = 6e^{2x^3}$

V. Calcula las derivadas de las siguientes funciones usando CAMBIO DE VARIABLE.

41. $f(x) = (2x - 3)^4$

42. $f(x) = (3x + 8)^{-6}$

43. $f(x) = (x^3 + 2)^5$

44. $f(x) = (2x^4 - 4)^5$

45. $f(x) = (2x^6 + 1)^{-3}$

VI. Calcula las derivadas de las siguientes funciones usando la REGLA DEL PRODUCTO.

46. $f(x) = (x)(x - 3)$

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

48. $f(x) = x \cdot \ln(x^2)$

49. $f(x) = x \cdot e^x$

50. $f(x) = x^3 \cdot e^{2x}$

VII. Calcula las derivadas de las siguientes funciones usando la REGLA DEL COCIENTE.

51. $f(x) = \frac{x^3-4}{x^2}$

52. $f(x) = \frac{x^2+5}{3x}$

53. $f(x) = \frac{3x^2-1}{x^3}$

54. $f(x) = \frac{x^3}{x^2-3x}$

55. $f(x) = \frac{x^4}{4x^2-5x}$

VIII. Calcula los MÁXIMOS Y LOS MÍNIMOS de la siguiente función. Graficar.

56. $f(x) = 4x^3 - 15x^2 - 18x + 40$

