Colegio Beato Carlos Manuel Rodríguez
Departamento de Matemáticas
PreCálculo

Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Repaso Material Primer Semestre

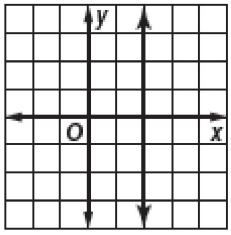
Multiple Choice
Identify the choice that best completes the statement or answers the question.

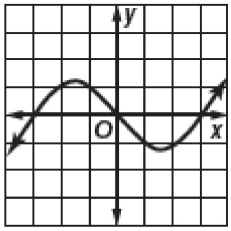
____ 1. What is the zero of the function $g(x) = 3x - 2$?

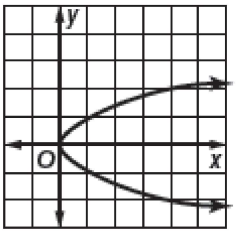
a. -2
b. $-\frac{3}{2}$
c. $-\frac{2}{3}$
d. $\frac{2}{3}$

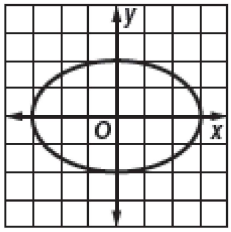
Write the letter for the correct answer in the blank at the right of each question.

____ 2. Which relation is a function?

a. 

c. 

b. 

d. 

____ 3. Given $g(x) = -2\sqrt{x^2}$, find $g(8+x)$.

a. $-2\sqrt{x^2+8}$
b. $\sqrt{-2x^2-128}$
c. $-2\sqrt{x^2+64}$
d. $-2\sqrt{x^2+16x+64}$

____ 4. If $f(x) = x^2 + 1$ and $g(x) = \frac{1}{x}$, find $[f \circ g](x)$.

a. $[f \circ g](x) = x + \frac{1}{x}$
b. $[f \circ g](x) = \frac{1}{x^2}$
c. $[f \circ g](x) = \frac{1}{x^2+1}$
d. $[f \circ g](x) = \frac{1}{x^2} + 1$

____ 5. If $f(x) = \dfrac{1}{x+2}$ and $g(x) = 3x$, find $(f-g)(x)$.

a. $(f-g)(x) = \dfrac{-3x^2+6x+1}{x-3}$

b. $(f-g)(x) = \dfrac{-3x^2-6x-1}{x+2}$

c. $(f-g)(x) = \dfrac{-3x^2-6x+1}{x+2}$

d. $(f-g)(x) = \dfrac{3x^2+6x+1}{x+2}$

____ 6. If $f(x) = x^2+1$ and $g(x) = x+2$, find $\left[f \circ g\right](x)$.

a. $\left[f \circ g\right](x) = x^2+3$

b. $\left[f \circ g\right](x) = x^2+5$

c. $\left[f \circ g\right](x) = x^2+4x+4$

d. $\left[f \circ g\right](x) = x^2+4x+5$

____ 7. What are the asymptotes for the graph of $g(x) = \dfrac{6x-1}{3x+4}$?

a. $x = -\dfrac{4}{3}$

b. $x = -\dfrac{4}{3}, y = \dfrac{1}{6}$

c. $x = -\dfrac{4}{3}, y = 2$

d. $x = \dfrac{1}{6}, y = -\dfrac{4}{3}$

____ 8. $(11+i)+(3-15i)$

a. $14-14i$

b. $-4+4i$

c. $12-12i$

d. $14+16i$

____ 9. $(11-12i)+(21-8i)$

a. $9+19i$

b. $32-20i$

c. $32-4i$

d. $29i-i$

____ 10. $(8+10i)(5-8i)$

a. $40-14i+80$

b. $120-14i$

c. $40-14i-80i^2$

d. $88+50i$

____ 11. $(-4+4i)(-3-3i)$

a. $16+12i$

b. $12+0i-12i^2$

c. $24+0i$

d. $12+0i+12$

____ 12. Simplify the expression $\dfrac{3-9i\sqrt{5}}{3+2i\sqrt{5}}$ by using complex conjugates to write quotients of complex numbers in standard form.

a. $-\dfrac{9}{19}+\dfrac{33}{29}i\sqrt{5}$

b. $-\dfrac{81}{29}-\dfrac{33}{29}i\sqrt{5}$

c. $-\dfrac{9}{19}+\dfrac{60}{19}i\sqrt{5}$

d. $-\dfrac{81}{29}-\dfrac{60}{19}i\sqrt{5}$

____ 13. $\dfrac{3}{6+7i}$

a. $\dfrac{18}{85}+\dfrac{21}{85}i$

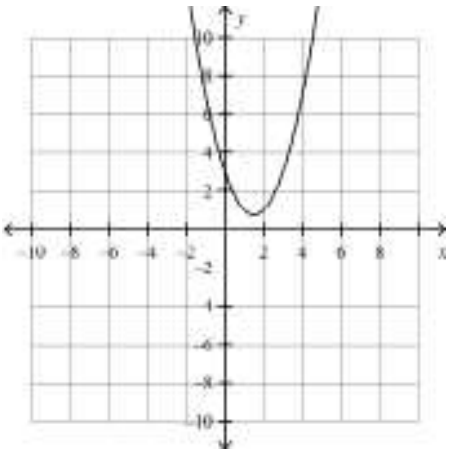
b. $\dfrac{6}{85}-\dfrac{7}{85}i$

c. $\dfrac{18}{13}+\dfrac{21}{13}i$

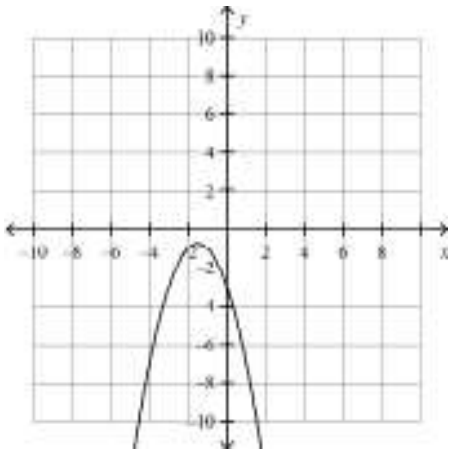
d. $\dfrac{18}{85}-\dfrac{21}{85}i$

____ 14. Graph $f(x)=x^2+3x+3$ by making a table of values.

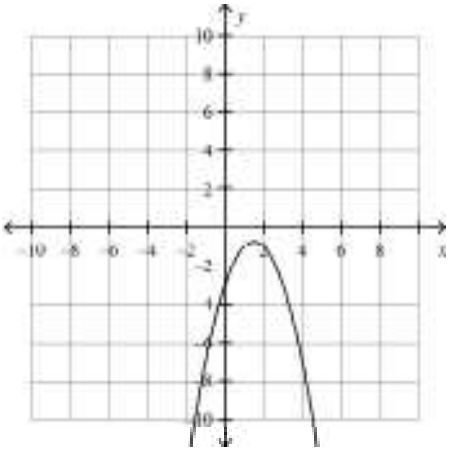
a.



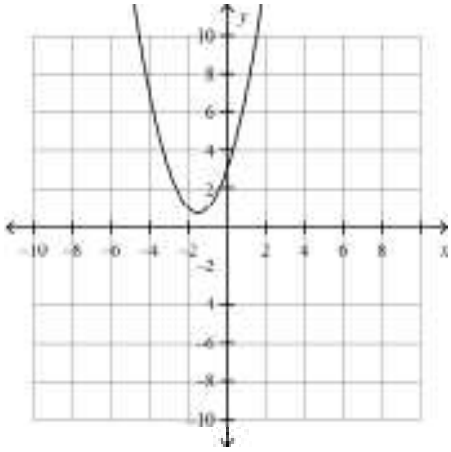
c.



b.



d.



____ 15. Solve $-2x^2+5x=0$ by completing the square.

a. 2.5, 0

b. 0, – 2.5

c. 0

d. 5, 0

____ 16. Find the exact solution of $-x^2+3x+7=0$ by using the Quadratic Formula.

a. $\dfrac{3-\sqrt{37}}{-2}, \dfrac{3+\sqrt{37}}{-2}$

b. $\dfrac{-3-\sqrt{12}}{-2}, \dfrac{-3+\sqrt{12}}{-2}$

c. $\dfrac{-3-\sqrt{-19}}{-2}, \dfrac{-3+\sqrt{-19}}{-2}$

d. $\dfrac{-3-\sqrt{37}}{-2}, \dfrac{-3+\sqrt{37}}{-2}$

____ 17. Simplify the expression: $\sqrt{16a^{10}}$

a. $16a^{10}$
c. $4a^{10}$
b. $16a^{5}$
d. $4a^{5}$

____ 18. Simplify $\sqrt{25x^{20}y^{14}}$.

a. $5x^{10}y^{7}$
c. $5x^{20}y^{14}$
b. $12.5x^{20}y^{14}$
d. $12.5x^{10}y^{7}$

____ 19. Simplify $\sqrt[4]{81a^{32}b^{20}}$.

a. $20.25a^{32}b^{20}$
c. $3a^{8}b^{5}$
b. $3a^{32}b^{20}$
d. $20.25a^{8}b^{5}$

____ 20. Simplify the expression. $\dfrac{x^{\frac{4}{7}} \bullet x^{\frac{3}{7}}}{x^{\frac{1}{7}}}$

a. $x^{\frac{7}{8}}$
c. $x^{\frac{7}{6}}$
b. $x^{\frac{6}{7}}$
d. $x^{\frac{8}{7}}$

____ 21. Solve the system of equations algebraically.

$4x - 3y = 3$

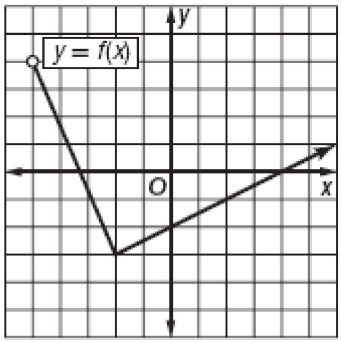
$6x - 6y = 6$

a. many solutions
c. $(0, -1)$
b. $(-1, 0)$
d. no solution

Short Answer

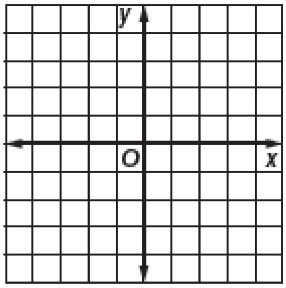
22. Evaluate $f(-2)$ if $f(x) = 3x^2 - 2x$.

23. Use the graph of f to find the domain and range of the function.



24. Given $f(x) = 3x^2 - 4$, find $f(a - 2)$.

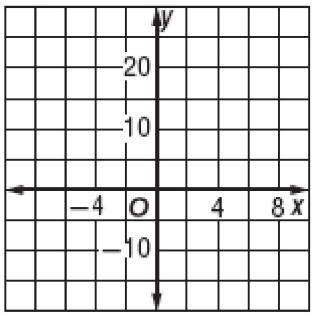
25. Use transformations of the parent graph of $m(x) = x^3$ to sketch the graph of $p(x) = (x + 2)^3 - 1$.



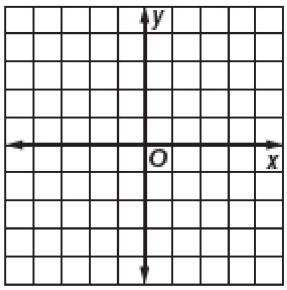
26. If $f(x) = x + 4$ and $g(x) = \dfrac{1}{x^2 - 16}$, find $\left(f \cdot g\right)(x)$ and its domain.

27. If $f(x) = x + 4$ and $g(x) = \dfrac{1}{x^2 - 16}$, find $\left[g \circ f\right](x)$.

28. Graph $g(x) = \dfrac{x^2 + 5x + 6}{x - 2}$ and state its domain.



29. Sketch the graph of $f(x) = \dfrac{x-1}{x^2-3x}$.



30. Simplify the expression: $\dfrac{\sqrt[8]{81}}{\sqrt[6]{3}}$