Name: _____ Block: _____ ID: A

Review #4 Pre-Calculus 12 Chapters 9 - 11

Completion
Complete each statement.

1. The rational function $f(x) = \frac{1}{-17x-17}$ has a vertical asymptote with equation $x = -1$.

2. The rational function $f(x) = \frac{13}{x^2-11}$ has a y-intercept of $\frac{-13}{11}$.

3. When solving the rational function $\frac{x^2-8x-6}{-4+3x} = x+2$ graphically, the single function that could be graphed is $f(x) = \frac{x^2-8x-6}{-4+3x} - x - 2$

4. If $f(x)$ is a quadratic function with positive coefficients and $g(x)$ is a linear function with positive coefficients, then $f(x)+g(x)$ is a quadratic function.

5. If $f(x)$ is a linear function and $g(x)$ is a linear function, then $f(x)g(x)$ is a quadratic function.

6. If $f(x) = \sqrt{x-4}$ and $g(x) = x^2-3$, then the domain of the function $h(x) = f(g(x))$ is $\{x \mid x \le -\sqrt{7}$ or $x \ge \sqrt{7},\ x \in \mathbb{R}\}$

7. If $h(x) = f(g(x))$, and $h(x) = 7\cot^2 x$, then $f(x) =$ _____ and $g(x) =$ _____.
sample $7/x^2$ $\tan x$

8. The selection of objects in which order is not important is called a(n) combination

9. ${}_{14}P_9$ can be written in factorial notation as $\frac{14!}{(14-9)!}$.

10. ${}_{20}C_{14}$ can be written in factorial notation as $\frac{20!}{(20-14)!14!}$

11. Find the 5th term in the expansion of $(2x+5)^7$
$175000x^3$

12. Which term of $\left(x - \frac{1}{x^2}\right)^9$ is constant.
4th

Matching

Use the following information to answer the matching questions:
$f(x) = x^2 + x - 6$
$g(x) = 2x + 6$

Match each function with its corresponding graph.

A. $x^2 + 3x$
B. $2x^3 + 8x^2 - 6x - 36$
C. $\frac{x-2}{2}$
D. $2x^2 + 5x + 3$
E. $x^2 - x - 12$
F. $2x^2 + 2x - 6$

A 1. $h(x) = f(x) + g(x)$

E 2. $h(x) = f(x) - g(x)$

B 3. $h(x) = f(x)g(x)$

C 4. $h(x) = \frac{f(x)}{g(x)}$

F 5. $h(x) = g(f(x))$

Match each value with the correct expression.

A. ${}_7C_4$
B. ${}_{11}C_7$
C. ${}_7P_4$
D. ${}_{11}P_7$
E. $\frac{7!}{4!}$
F. $\frac{11!}{7!}$

B 6. 330

C 7. 840

D 8. 1 663 200

E 9. 210

A 10. 35

Match each graph of a rational function with its equation.

A. $f(x) = \dfrac{9}{x^2 - 4}$

B. $f(x) = \dfrac{1}{x+4}$

C. $f(x) = -\dfrac{1}{x+4}$

D. $f(x) = \dfrac{1}{x^2 + 4}$

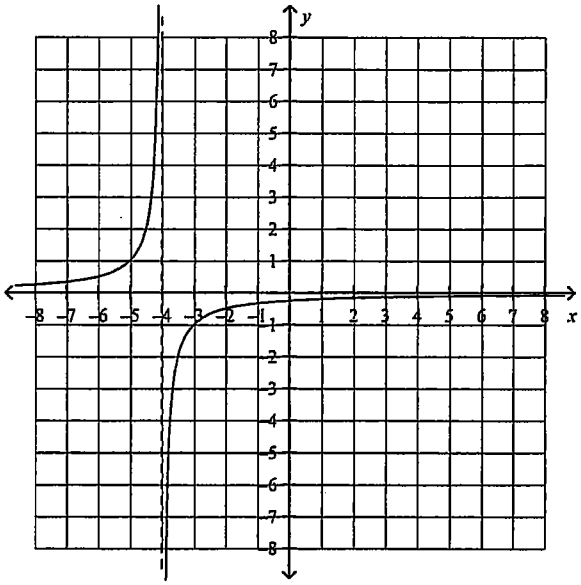
E. $f(x) = \dfrac{-3x - 9}{x+4}$

F. $f(x) = \dfrac{9}{x^2 + 6x + 8}$

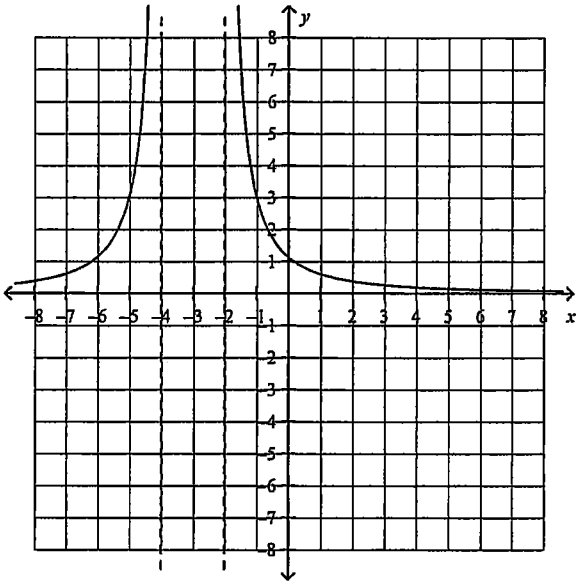
G. $f(x) = \dfrac{1}{(x+4)^2}$

H. $f(x) = \dfrac{x}{-3(x+4)}$

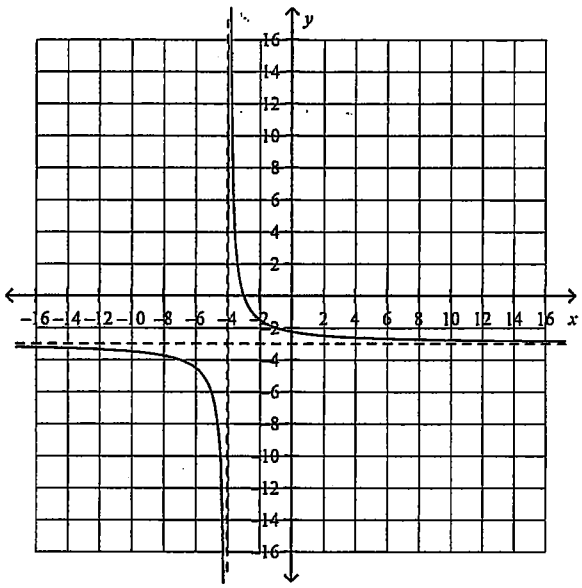
C **11.**



F **12.**



E 13.


y
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16
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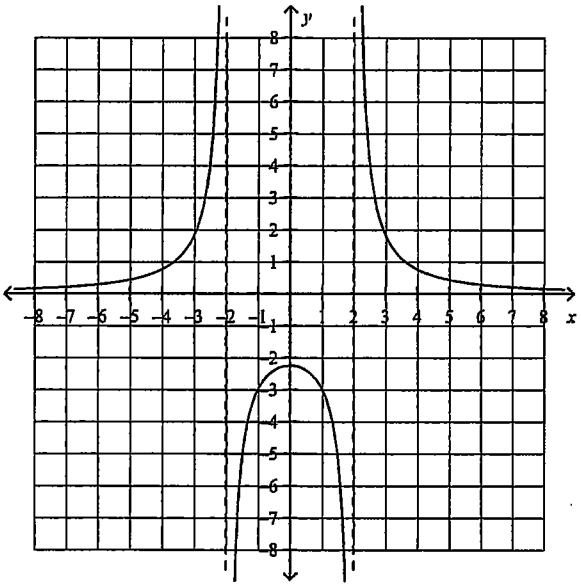
−16 −14 −12 −10 −8 −6 −4 −2
2 4 6 8 10 12 14 16

A 14.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1 2 3 4 5 6 7 8