

Limits - Readiness Assurance Test

1. Suppose that $q = f(p)$, so that the quantity q is a function of the quantity p . Let's say the dependent variable has value 10 when the independent variable has value 2. Which equation best expresses this relationship?

(a) $2 = f(10)$
(b) $10 = f(2)$
(c) ...
(d) ...

2. Simplify the following expression:

$$\frac{x^2 - 6x + 8}{x^2 - 5x + 6}$$

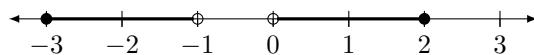
(a) $\frac{(x-4)}{(x-3)}$
(b) b
(c) c
(d) d
(e) e

3. Find all vertical asymptote(s), horizontal asymptote(s), and hole(s) for the function given below.

$$f(x) = \frac{x^2 - 6x + 8}{x^2 - 5x + 6}$$

(a) vertical asymptote of $x = 3$, horizontal asymptote of $y = 1$, hole when $x = 2$
(b) vertical asymptote of $x = 2$, horizontal asymptote of $y = 1$, hole when $x = 3$
(c) vertical asymptote of $x = 2$, horizontal asymptote of $y = 1$, hole when $x = 3$
(d) some more mix up

4. Use interval notation to represent the number line shown below.



(a) $[-3, 2]$
(b) $[-3, -1) \cup (0, 2]$
(c) $(-3, -1) \cup (0, 2)$
(d) $(-3, -1] \cup [0, 2)$
(e) $[-3, -1] \cup [0, 2]$

5.

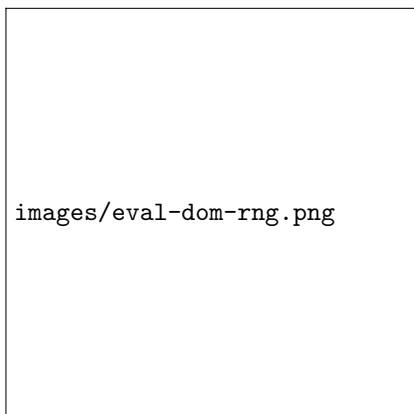
6. Which expression is equal to the product $(x-4)(x^2+3x-3)$?

(a) $x^3 - x^2 - 15x + 12$
(b) $x^2 + 4x - 7$
(c) need a bit of time to find good distractors

7.

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8. Consider the function $h(x)$ whose graph is pictured below. Select the most accurate statement.



- (a) $h(1) = 3$
 - (b) $h(2) = 3$
 - (c) $h(3) = 2$
 - (d) $h(4) = 1$
- 9.
10. (10) What is the domain of the function

$$\frac{x-1}{x+1} + \frac{x+3}{x-4}?$$

- (a) All real numbers
- (b) All real numbers except 1 and -4
- (c) All real numbers except 1 and -3
- (d) All real numbers except -1 and 4
- (e) All real numbers except -1 and 3