**Solve rational equations and inequalities****1**

What set describes the domain of this function?

$$f(x) = \frac{-5}{1x+5}$$

A $\{X \in \mathbb{R} | X < -5 \text{ or } -5 < X < 5\}$

B $\{X \in \mathbb{R} | X < -5 \text{ or } -5 < X\}$

2

Which set of values satisfies this inequality?

$$(x-2)(x-3) > 0$$

A $(-\infty, 2) \cup (3, \infty)$

B $(2, 3)$

C $(-4, 2) \cup (3, \infty)$

D $(-\infty, 2) \cup (2, 3) \cup (3, \infty)$

3

What set describes the domain of this function?

$$f(x) = \frac{3}{1x^2 + 1x - 12}$$

A $\{X \in \mathbb{R} | -4 < X < 4 \text{ or } -4 \leq X < 3 \text{ or } -3 < X < 3\}$

B $\{X \in \mathbb{R} | X < -4 \text{ or } -4 < X < 3 \text{ or } 3 < X\}$

4

Is this rational function positive or negative on the interval $(3, 4)$?

$$\frac{x(x-3)}{x-4}$$

A

Negative

B

Positive

5

Is this rational function positive or negative on the interval $(1, \infty)$?

$$\frac{(x+1)(x-2)^2}{x-1}$$

A

Positive

B

Negative

6

Is this rational function positive or negative on the interval $(-\infty, -4)$?

$$\frac{(x+4)(x+2)(x-4)}{x}$$

A

Positive

B

Negative

7

Is this rational function positive or negative on the interval $(-4, 2)$?

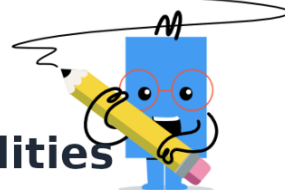
$$\frac{(x+4)^5(x-2)^5(x-4)^4}{x-3}$$

A

Positive

B

Negative

**Solve rational equations and inequalities**

- 8 Which sign chart correctly shows the sign of this rational function on each interval?

$$\frac{(x+4)(x+1)}{x-1}$$

A

Interval	Sign
$(-\infty, -4)$	-
$(-4, -1)$	+
$(-1, 1)$	-
$(1, \infty)$	+

B

Interval	Sign
$(-\infty, -4)$	+
$(-4, -2)$	-
$(-2, -1)$	+
$(-1, 1)$	-
$(1, \infty)$	+

- 9 Which chart correctly shows the intervals where this inequality is valid?

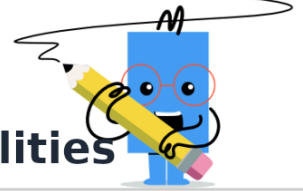
$$\frac{x^2 - 6x + 8}{x - 2} < 0$$

A

Interval	Valid
$(-\infty, 4)$	Yes
$(4, \infty)$	No

B

Interval	Valid
$(-\infty, -4)$	No
$(-4, 4)$	Yes
$(4, \infty)$	No

**Solve rational equations and inequalities****10**

On which set of open intervals does this rational function keep a constant sign?

$$\frac{(x+2)^4(x-1)^5}{x+1}$$

A

$$(-\infty, -3) \cup (-3, -1) \cup (-1, 1) \cup (1, \infty)$$

B

$$(-\infty, -2) \cup (-2, -1) \cup (-1, 1) \cup (1, \infty)$$

C

$$(-\infty, -4) \cup (-4, -1) \cup (-1, 1) \cup (1, \infty)$$

D

$$(-\infty, -1) \cup (-1, 1) \cup (1, \infty)$$

11

On which set of open intervals does this rational function keep a constant sign?

$$\frac{(x+2)(x-2)(x-4)}{x-2}$$

A

$$(-\infty, -4) \cup (-4, -2) \cup (-2, 4) \cup (4, \infty)$$

B

$$(-\infty, -3) \cup (-3, -2) \cup (-2, 4) \cup (4, \infty)$$

C

$$(-\infty, -2) \cup (-2, 2) \cup (2, 4) \cup (4, \infty)$$

D

$$(-\infty, -2) \cup (-2, 4) \cup (4, \infty)$$

12

Which chart correctly shows the intervals where this inequality is valid?

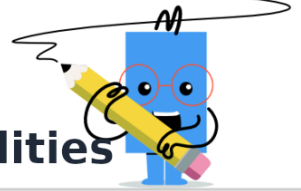
$$\frac{(x-2)(x-4)^2}{x+1} < 0$$

A

Interval	Valid
$(-\infty, -1)$	Yes
$(-1, 2)$	No
$(2, 4)$	Yes
$(4, \infty)$	No

B

Interval	Valid
$(-\infty, -1)$	No
$(-1, 2)$	Yes
$(2, \infty)$	No

**Solve rational equations and inequalities****13**

Which chart correctly shows the intervals where this inequality is valid?

$$\frac{(x+1)(x-3)(x-4)}{x+2} > 0$$

A

Interval	Valid
$(-\infty, -2)$	No
$(-2, -1)$	Yes
$(-1, 3)$	No
$(3, 4)$	Yes
$(4, \infty)$	No

B

Interval	Valid
$(-\infty, -2)$	Yes
$(-2, -1)$	No
$(-1, 3)$	Yes
$(3, 4)$	No
$(4, \infty)$	Yes

14

Which sign chart correctly shows the sign of this rational function on each interval?

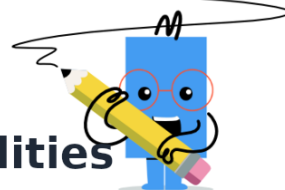
$$\frac{(x+3)^5(x+2)^2(x-3)^3}{x-1}$$

A

Interval	Sign
$(-\infty, -3)$	-
$(-3, 1)$	+
$(1, 3)$	-
$(3, \infty)$	+

B

Interval	Sign
$(-\infty, -3)$	+
$(-3, 1)$	-
$(1, 3)$	+
$(3, \infty)$	-

**Solve rational equations and inequalities****15**

Which chart correctly shows the intervals where this inequality is valid?

$$\frac{(x+3)^3(x+2)^2x^3}{x-1} > 0$$

A

Interval	Valid
$(-\infty, -4)$	Yes
$(-4, -3)$	No
$(-3, 0)$	Yes
$(0, 1)$	No
$(1, \infty)$	Yes

B

Interval	Valid
$(-\infty, -3)$	No
$(-3, 0)$	Yes
$(0, 1)$	No
$(1, \infty)$	Yes

16

Which set of values satisfies this inequality?

$$\frac{x^2 + x - 12}{x + 4} > 0$$

A

$$(-\infty, 3)$$

B

$$(-\infty, 3) \cup (3, \infty)$$

C

$$(3, \infty)$$

D

$$(-\infty, -4) \cup (3, \infty)$$

17

Which set of values satisfies this inequality?

$$\frac{(x+4)(x+2)}{x+1} > 0$$

A

$$(-\infty, -4) \cup (-2, -1)$$

B

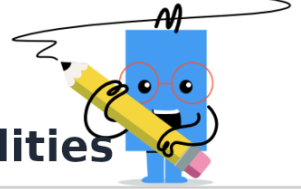
$$(-\infty, -4) \cup (-3, -2) \cup (-1, \infty)$$

C

$$(-4, -2) \cup (-1, \infty)$$

D

$$(-\infty, -4) \cup (-4, -2) \cup (-2, -1) \cup (-1, \infty)$$

**Solve rational equations and inequalities****18**

Which set of values satisfies this inequality?

$$\frac{(x+2)x(x-1)}{x-2} > 0$$

A

$$(-\infty, -2) \cup (0, 1) \cup (2, \infty)$$

B

$$(-2, 0) \cup (1, 2)$$

C

$$(-4, -2) \cup (0, 1) \cup (2, \infty)$$

D

$$(-\infty, -2) \cup (-2, 0) \cup (0, 1) \cup (1, 2) \cup (2, \infty)$$

19

Which set of values satisfies this inequality?

$$\frac{(x-1)^4(x-2)^5}{x+3} < 0$$

A

$$(-\infty, -3) \cup (2, \infty)$$

B

$$(-\infty, -3) \cup (-3, 2) \cup (2, \infty)$$

C

$$(-3, 2)$$

D

$$(-\infty, -3) \cup (1, 2)$$

20

Which set of values satisfies this inequality?

$$\frac{(x+4)^4(x+3)^5(x-3)^5}{x-1} > 0$$

A

$$(-3, 1) \cup (3, \infty)$$

B

$$(-\infty, -4) \cup (-3, 1) \cup (3, \infty)$$

C

$$(-\infty, -3) \cup (1, 3)$$

D

$$(-\infty, -3) \cup (-3, 1) \cup (1, 3) \cup (3, \infty)$$