

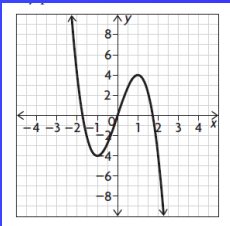
State the intervals of increase/
decrease

$$f(x) = \frac{x - 8}{x^2 - 4}, -5 < x < 5$$

Answer

inc (0.25, 2) and (2, 5)
dec (-5, -2) and (-2, 0.25)

Main Board



State the intervals
of increase and
decrease

Answer

increasing on $(-1, 1)$; decreasing on $(-\infty, -1)$
and $(1, \infty)$

Main Board

A relation in which one variable is a multiple of the other plus a constant amount

Answer

Partial variation
\$400

Main Board

A phrase that also means slope (usually for word problems)

Answer

Rate of Change
\$500

Main Board

Determine the critical numbers,
and then state if they are local
maximum or minimum

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

Answer

critical point at $x = 3$; no minimum and no
maximum because the function is not defined for
 $x = 3$

Main Board

Determine the critical numbers,
and then state if they are local
maximum or minimum

$$f(x) = x^4 - 2x^3 + 3x^2$$

Answer

critical point at $x = 0$; minimum at $(0, 0)$

Main Board

Determine the critical numbers, and then state if they are local maximum or minimum. Also determine the intervals of increase and decrease

$$f(x) = x^3 - 3x$$

Answer

critical numbers $x = 1$ and $x = -1$; increasing from $(-\infty, -1)$ and $(1, \infty)$; decreasing from $(-1, 1)$; local maximum of 2 at $x = -1$; local maximum of -2 at $x = 1$

Main Board

Determine all critical numbers:

$$f(x) = (3x)(\sqrt{x})$$

Answer

$$x = 0$$

Main Board

Determine all critical numbers:

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

Answer

$$x = 0, x = -\frac{1}{9}$$

Main Board

Determine the horizontal and vertical asymptotes if they exist. State any other discontinuities:

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

Answer

horizontal asymptote $y = 0$; vertical asymptotes
 $x = 1, x = -1$

Main Board

Determine the horizontal and vertical asymptotes if they exist. State any other discontinuities:

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

Answer

horizontal asymptote $y = 0$; no vertical asymptotes; discontinuity at $x = 1$

Main Board



Daily Double

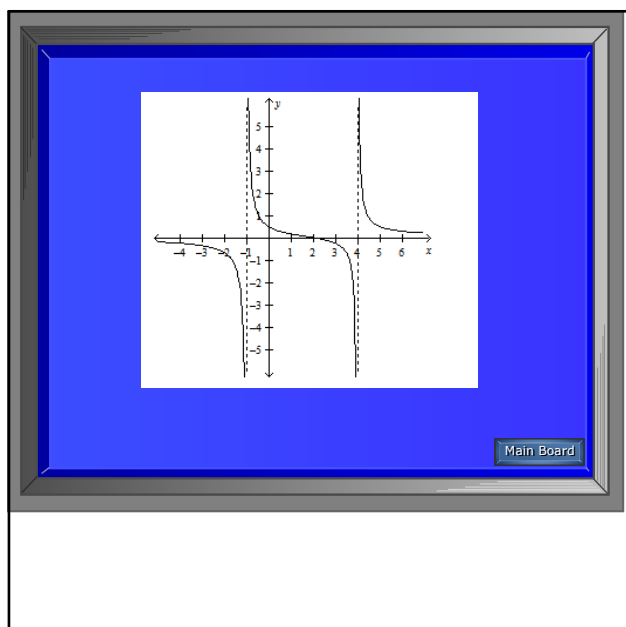
Check Money

\$ Risked ???

Next

Use the algorithm for curve sketching to sketch the graph of $f(x) = \frac{x-2}{x^2-3x-4}$.

Answer



For the function $f(x) = x^3 - 3x$, determine:
i. the domain, intercepts, asymptotes, and any discontinuities

Answer

domain all real numbers; x-intercepts $\sqrt{3}$, $-\sqrt{3}$, and 0; y-intercept 0; no asymptotes or discontinuities

Main Board

Which of the following is an x-intercept:

- a) (2,3)
- b) (0,3)
- c) (3,0)

Answer

C
\$500

Main Board

For the function $f(x) = x^3 - 3x$, determine:

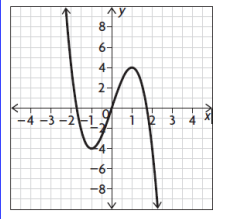
where the graph is concave up and concave down, and any points of inflection

Answer

concave up on $(0, \infty)$; concave down on $(-\infty, 0)$; point of inflection $x = 0$

Main Board

From the following graph of a function $f(x)$, determine the intervals of concavity

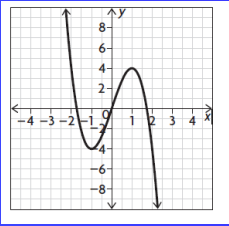


Answer

concave up on $(-\infty, 0)$; concave down on $(0, \infty)$

Main Board

From the following graph of a function $f(x)$, determine any points of inflection




Answer

$x = 0$

Main Board

What is the slope?



Answer

6
\$400

Main Board

What is the
slope?
 $y = -10x - 11$

Answer

-10
\$500

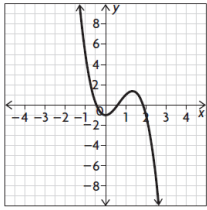
Main Board

Sketch the graph of a function with the following properties:

- There are local extrema at $(0, -1)$ and $(\frac{4}{3}, 1.37)$.
- There is a point of inflection at $(\frac{2}{3}, 0.19)$.
- The graph is concave up for $x < \frac{2}{3}$ and concave down for $x > \frac{2}{3}$.
- The x -intercepts are -0.45 , 0.60 , and 1.85 ; the y -intercept is -1 .

Answer

Answers may vary. For example:
 $f(x) = -2x^3 + 4x^2 - 1$; the graphs of other functions will also satisfy the given conditions.

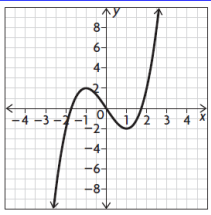


Main Board

Sketch a graph of the function

$$f(x) = x^3 - 3x,$$

Answer



Main Board

Find the equation with $m = -1/4$, $b = -7$

Answer

$$y = -\frac{1}{4}x - 7$$

\$300

Main Board

Find the equation with y-int 2 and point (3,1)

Answer

$$y = -\frac{1}{3}x + 2$$

\$400

Main Board

Find the equation with points (2,0), (4,1)

Answer

$$y = \frac{1}{2}x - 1$$

\$500

Main Board

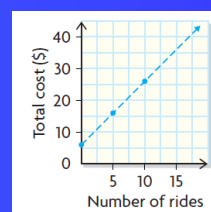
What is another
phrase for Δy

Answer

First Differences
\$100

Main Board

Use the axis to tell what the
slope represents

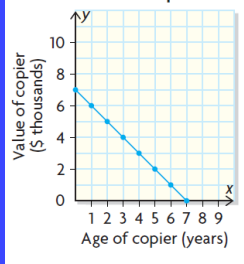


Answer

Cost per ride
\$200

Main Board

Use the axis to tell what the rate of change represents



Answer

Change in value
per year
\$300

Main Board

What is the equation for the following scenario:

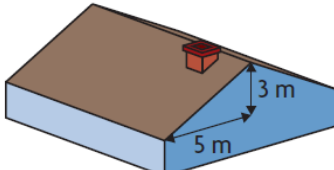
A hockey player is paid \$2 million per year, plus a signing bonus of \$500 000.

Answer

$y = 2\,000\,000x + 500\,000$
\$400

Main Board

5. What is the slope of this roof?



Answer

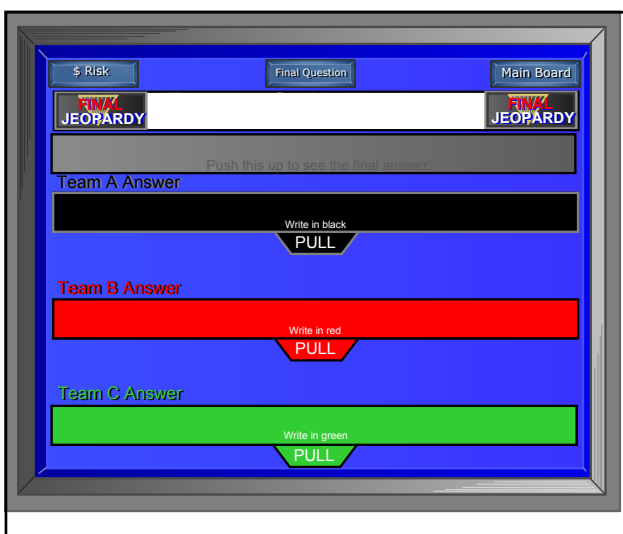
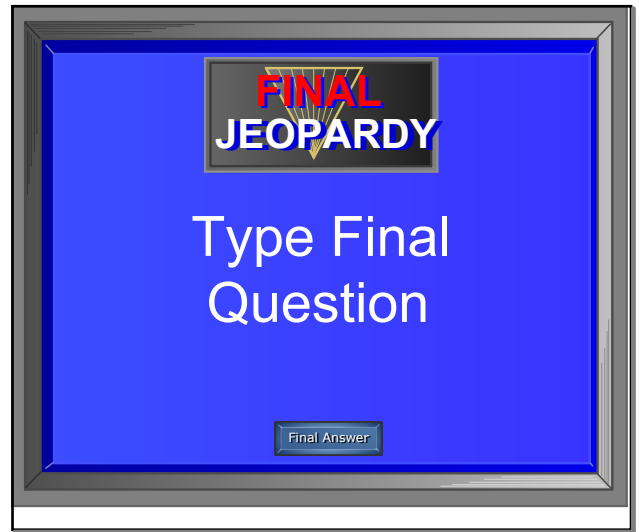
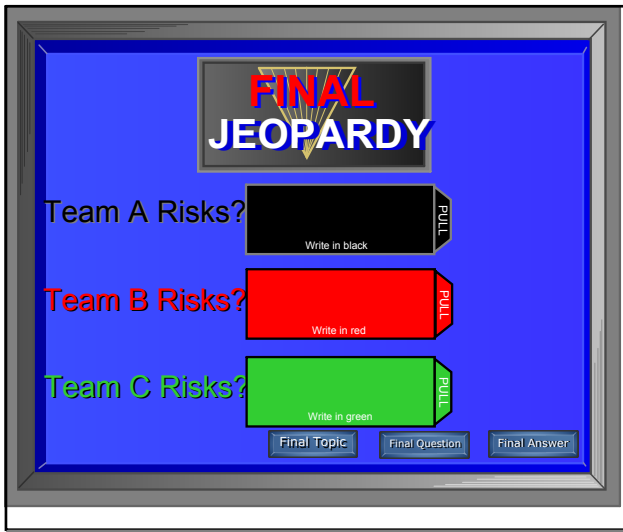
$\frac{3}{5}$
\$500

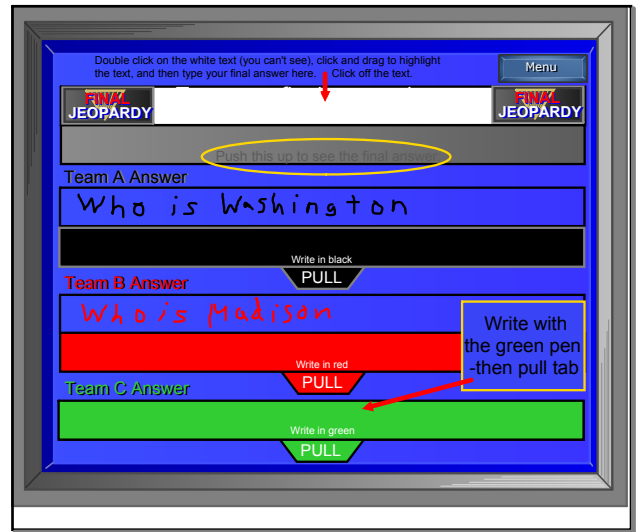
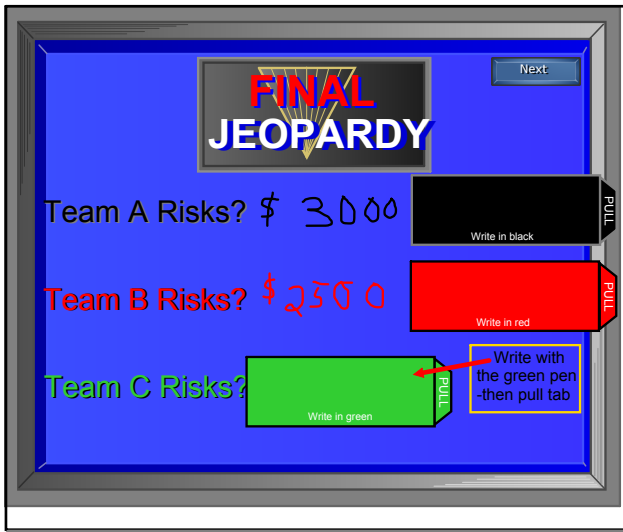
Main Board

FINAL
JEOPARDY

TypeFinal
Topic

\$ Risk





How to set up the CATEGORY names.

- Single click on the main board button.
- Double click on the category name you want to change.
- Click and Drag on the text to highlight the text.
- Type the name of the category.
(You might need to drag the text window bigger by dragging on one of the white circles.)
- Single click off the text to get rid of the pop up window.
- Single click on the text to just select the window.
(A different text window with a green dot should appear).
- Click and Drag on the white circle to adjust font size.
- Click and Drag on the text to move or center the text.
- Click and Drag on the gray pulldown box to Locking. (Then slide to Lock In Place)

Repeat the above steps for other categories



How to set up the QUESTIONS / ANSWERS.

- Single click on the main board button (unless you are already there).
- Single click on the dollar value that you want to add a question for.
(A new page should appear)

- Double click on the white text you want to change (question).
- Click and Drag on the text to highlight the text.
- Type your (question)
(You might need to drag the text window bigger by dragging on one of the white circles.)
- Single click off the text to get rid of the pop up window.
- Single click on the text to just select the window.
(A different text window with a green dot should appear).
- Click and Drag on the white circle to adjust font size.
- Click and Drag on the text to move or center the text.
- Click and Drag on the gray pulldown box to Locking. (Then slide to Lock In Place)

- Single click on the ANSWER button.
(A new page should appear)

Repeat the steps between the red lines for the answer page (substitute the word answer for question)

Repeat all of the above steps for the next question / answer.
Daily Double can be moved by changing the slide location and the link order.



