

# Rational Scavenger Hunt

Go to a station, solve the question, then check your answer!

It's as easy as pi 😊

Can you figure out my favorite tv show as a kid? Go through the scavenger hunt in order to earn clues to help figure out the riddle. In order to receive full credit, you must **SHOW ALL YOUR WORK!** Have fun and good luck!

|    |     |   |   |   |     |     |        |   |         |
|----|-----|---|---|---|-----|-----|--------|---|---------|
| -4 | 1/2 | 0 | 1 | 1 | 8/x | -10 | 3(x-5) | 1 | (x-2)/x |
|----|-----|---|---|---|-----|-----|--------|---|---------|

|         |    |   |        |       |   |           |        |       |   |
|---------|----|---|--------|-------|---|-----------|--------|-------|---|
| $(x-5)$ | -4 | 3 | $12/5$ | $1/2$ | 0 | $(x-2)/x$ | $12/5$ | $8/x$ | 0 |
|---------|----|---|--------|-------|---|-----------|--------|-------|---|

$$\frac{-(x-4)}{-1} = \frac{15}{8}$$

|                       |               |                    |                                 |
|-----------------------|---------------|--------------------|---------------------------------|
| $\frac{(x-5)}{(x+4)}$ | $\frac{1}{3}$ | $\frac{-10}{15/8}$ | $\frac{1}{\frac{(x+4)}{(x+2)}}$ |
|-----------------------|---------------|--------------------|---------------------------------|

|    |  |  |
|----|--|--|
| 1. |  |  |
| 2. |  |  |
| 3. |  |  |

4.

5.

6.

7.

8.

9.

|     |  |  |  |  |  |
|-----|--|--|--|--|--|
| 10. |  |  |  |  |  |
| 11. |  |  |  |  |  |
| 12. |  |  |  |  |  |
| 13. |  |  |  |  |  |
| 14. |  |  |  |  |  |
| 15. |  |  |  |  |  |

1. Solve the following:

$$\frac{1}{3k+5} = \frac{1}{k+5} - \frac{k-1}{3k^2+20k+25}$$



9. Find the horizontal asymptote, explain how you know the answer:

$$\frac{4}{x^2 - 3x}$$



**13. Simplify the following:**

$$\frac{6 + \frac{2}{x}}{\frac{3x+1}{4}}$$



**6. Simplify the following:**

$$\frac{x^3 - 8}{x^3 + 2x^2 + 4x}$$



**15. Solve the following:**

$$\frac{x+3}{2x-3} = \frac{18x}{4x^2-9}$$



14. Marcie can wallpaper a bathroom in 3 hr. Bailey can wallpaper the same bathroom in 5 hr. How long would it take them if they worked together?:



8. Simplify the following:

$$\frac{x^2 - 16}{9 - x} \cdot \frac{x^2 + x - 90}{x^2 + 14x + 40}$$



2. Find the vertical asymptote:

$$\frac{3x^2 - 10x - 8}{x^2 - 16}$$



**10. Simplify the following:**

$$\frac{\frac{3x + 6}{x + 5}}{\frac{x + 2}{x^2 - 25}}$$



4. Justin can install a new roof in 4 days. Ben can install the same size roof in 6 days. How long will it take them to install a roof if they work together?:



7. Solve the following:

$$\frac{x+2}{x} = \frac{x-1}{x} - \frac{4x+2}{x^2-3x}$$



12. Find the hole:

$$\frac{v^2 + 7v - 30}{9v^2 + 90v}$$



**3. Simplify the following:**

$$\frac{c^2 - c - 12}{c^2 + 4c + 3} \div \frac{c^2 - 6c + 8}{c^2 + 5c + 4}$$



5. Find a value that is NOT included in the domain:

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



**11. Simplify the following:**

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

