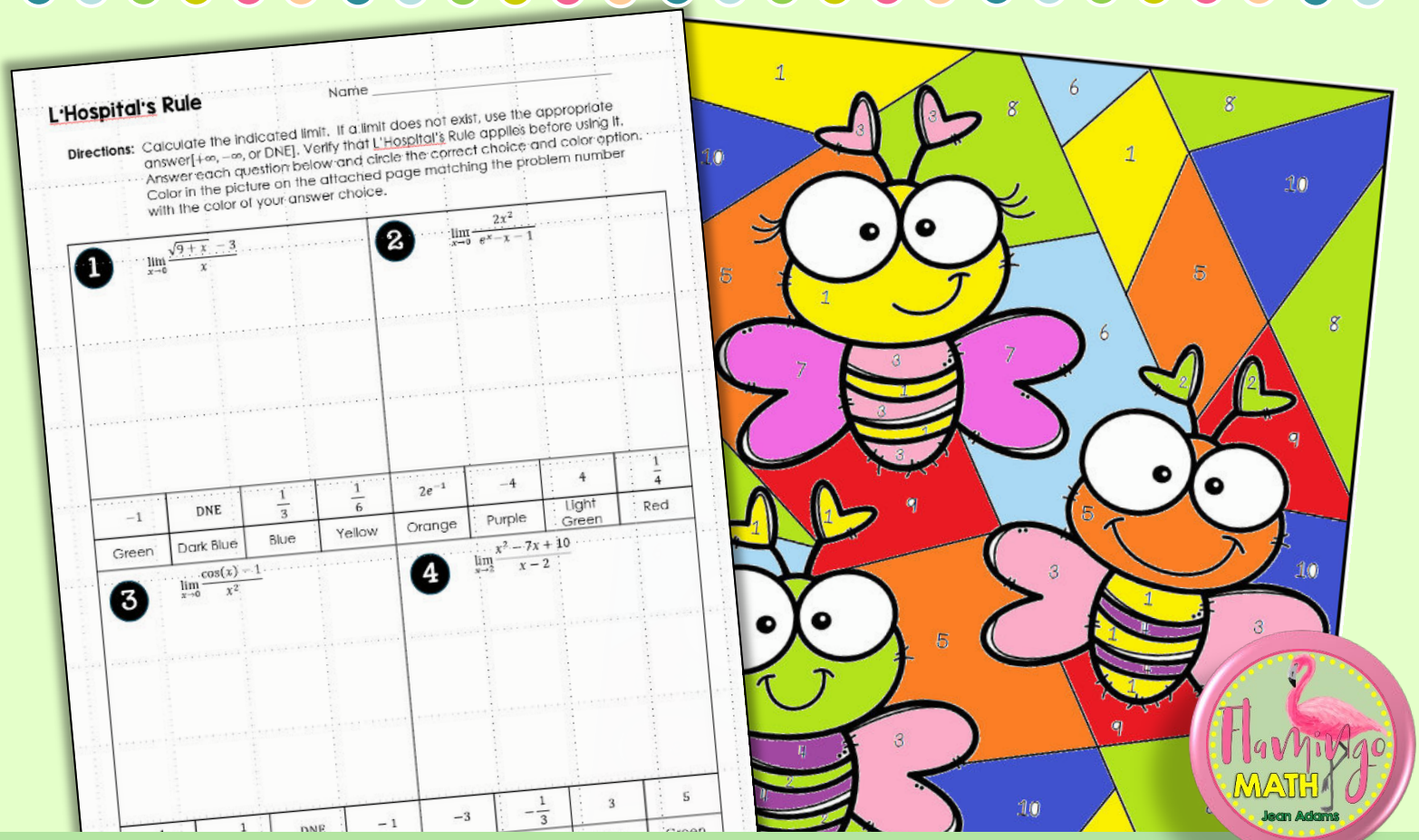
AP® Calculus

L'Hospital's Rule



Coloring Activity

Color by Number

L'Hospital's Rule

Name _____

Directions: Calculate the indicated limit. If a limit does not exist, use the appropriate answer[+∞, −∞, or DNE]. Verify that L'Hospital's Rule applies before using it. Answer each question below and circle the correct choice and color option. Color in the picture on the attached page matching the problem number with the color of your answer choice.

1 $\lim_{x\to 0}\frac{\sqrt{9+x}-3}{x}$

2 $\lim_{x\to 0}\frac{2x^2}{e^x-x-1}$

-1	DNE	$\frac{1}{3}$	$\frac{1}{6}$	$2e^{-1}$	-4	4	$\frac{1}{4}$
Green	Dark Blue	Blue	Yellow	Orange	Purple	Light Green	Red

3 $\lim_{x\to 0}\frac{\cos(x)-1}{x^2}$

4 $\lim_{x\to 2}\frac{x^2-7x+10}{x-2}$

$\frac{1}{2}$	$-\frac{1}{2}$	DNE	-1	-3	$-\frac{1}{3}$	3	5
Dark Blue	Pink	Orange	Hot Pink	Purple	Dark Blue	Red	Green

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5 $\lim_{x\to 0}\frac{\ln(\cos 3x)}{5x^2}$

6 $\lim_{x\to 0}\frac{e^{2x}-1}{\tan x}$

$-\frac{9}{10}$	0	DNE	$\frac{9}{10}$	2	$-\infty$	$-\frac{1}{2}$	-2
Orange	Dark Blue	Red	Green	Blue	Orange	Hot Pink	Green

7 $\lim_{x\to 0}\frac{1}{x}\ln\left(\frac{x+5}{5}\right)$

8 $\lim_{x\to\infty}\frac{e^{2x}}{2x^2}$

∞	DNE	5	$\frac{1}{5}$	∞	4	e^{2x}
Dark Blue	Blue	Red	Hot Pink	Green	Dark Blue	Light Blue	Yellow

9 $\lim_{x\to 0}\frac{x^2}{1-\cos(4x)}$

10 $\lim_{x\to 0}\frac{4x}{\ln(2x+1)}$

$\frac{2\sqrt{3}}{3}$	$\frac{1}{8}$	$\frac{\sqrt{3}}{3}$	$\sqrt{3}$	$\frac{1}{2}$	DNE	$\frac{2}{3}$	2
Green	Red	Dark Blue	Pink	Red	Purple	Yellow	Dark Blue

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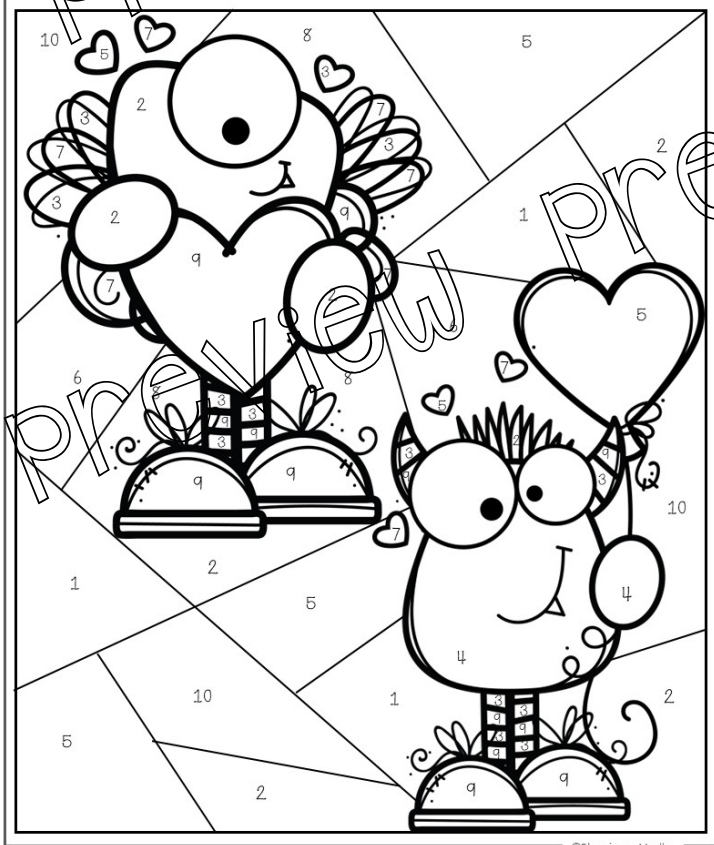
Color by Number

Name: _____

Date: _____



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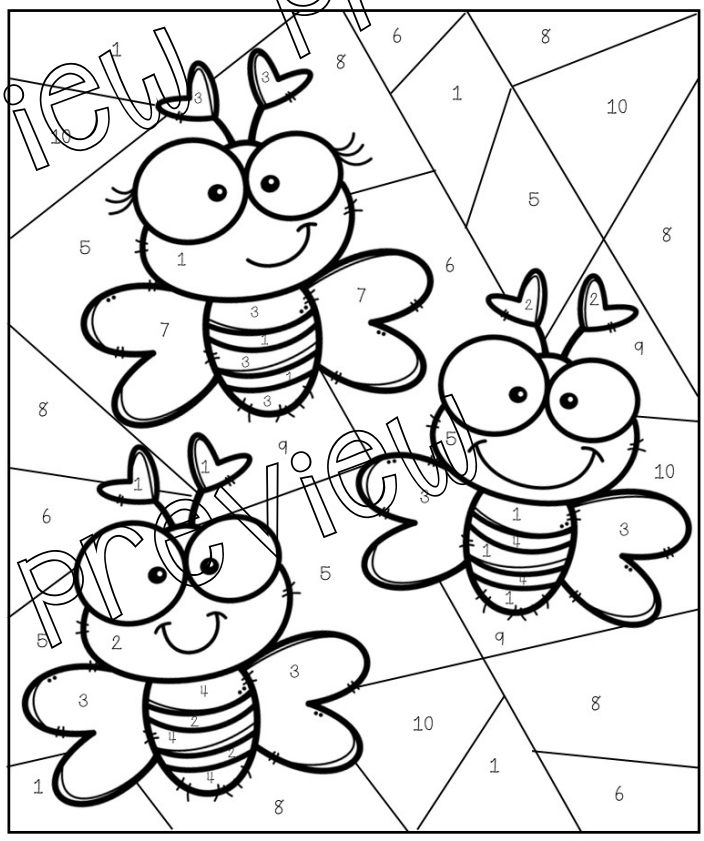

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