



Calculus Chain Rule

Super Secret Number

pUZZLEE



In this super secret number puzzle, students work with the chain rule. Students need to know how to find the derivative using the chain rule, how to find the equation of a tangent line, and how to use a chart to find the derivative using the chain rule.

Students find the answers to each of the ten questions and then add their answers together – this is the super secret number. After a bit of time, I tell them what the super secret number should be. If their super secret number matches mine, they probably did their problems correctly.

As an alternative, I have also included a page with a QR Code. This QR Code leads to the super secret number. To add excitement, students can scan the QR Code instead of just having the teacher tell the class the Super Secret Number.

Title page graphics by Creative Clips:

<http://www.teacherspayteachers.com/Store/Krista-Wallden>

Detective Clipart by: Educlips

<http://www.teacherspayteachers.com/Store/Educasong>

Fonts by: KG Fonts

<http://www.teacherspayteachers.com/Store/Kimberly-Geswein-Fonts>

ANSWER KEY:

1) -2	2) 36	3) 1	4) -12	5) -12	6) 85
7) 13	8) -3	9) -4	10) -11		

SUPER SECRET NUMBER IS: 91

SUPER SECRET NUMBER PUZZLE CHAIN RULE EDITION

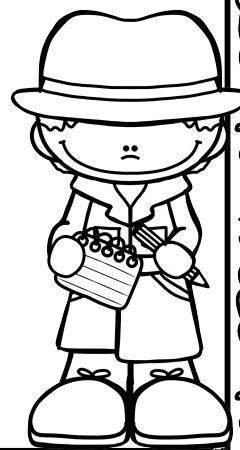
Find the answer to each question.
Write your answers in the answer blanks to the left.
Add up all of your answers.
Check to see if your number matches the super secret number!

- _____ 1. Find the value of the derivative of $y = \sin(2x)$ at $x = \frac{\pi}{2}$.
- _____ 2. Find the value of the derivative of $y = (3x+2)^3$ at $x = 0$.
- _____ 3. Find the value of the derivative of $y = \sqrt{2x-1}$ at $x = 1$.
- _____ 4. Find the value of the derivative of $y = \tan^2(3x)$ at $x = \frac{\pi}{4}$.
- _____ 5. Find the value of the derivative of $y = \frac{x^2}{x^2-3}$ at $x = 2$.
- _____ 6. Find the slope of the tangent line to the curve $y = x(3x-1)^2$ at the point where $x = 2$.
- _____ 7. Find the y-intercept of the tangent line to the curve $y = (4x+5)^3$ at the point where $x = -1$.

x	-2	-1	0	1	2
g(x)	-1	-2	0	3	-5
h(x)	3	1	2	-1	0
g'(x)	0	-1	3	5	1
h'(x)	4	0	1	-2	-1

- _____ 8. Use the table above. If $f(x) = g(h(x))$, find $f'(2)$
- _____ 9. Use the table above. If $k(x) = h(g(x))$, find $k'(-1)$
- _____ 10. Use the table above. If $q(x) = (h(x))(g(x))$, find $q'(1)$

THE SUPER SECRET NUMBER IS _____



THE SUPER SECRET
NUMBER IS...

