

Gold function interactive

```
# Gold function to uncover units in 0 A.D.

# units to uncover
x = var('x')

q = var('q')
s = var('s')

# metal at the start
g = var('g')
g = 20

@interact
# slider(min,max,step,default)
def gold_func_display( q = slider(1,10,1,2), s =
slider(1,10,1,7) ):
    # the function
    f = q*x*log(x^(s*log(x))) + g

    html('<h3>Plot of  $f(x) = %s$ </h3>'%latex(f))

    html('<ul>')

    unit = 1
    html('<li>uncover %s unit pay %s metal</li>' %( unit,
floor(RR(f(unit)))) ) )

    unit = 3
    html('<li>uncover %s units pay %s metal</li>' %( unit,
floor(RR(f(unit)))) ) )

    unit = 5
    html('<li>uncover %s units pay %s metal</li>' %( unit,
floor(RR(f(unit)))) ) )

    unit = 10
    html('<li>uncover %s units pay %s metal</li>' %( unit,
floor(RR(f(unit)))) ) )

    unit = 25
    html('<li>uncover %s units pay %s metal</li>' %( unit,
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floor(RR(f(unit))) ) )

    unit = 50
    html('<li>uncover %s units pay %s metal</li>' %( unit,
floor(RR(f(unit))) ) )

    unit = 75
    html('<li>uncover %s units pay %s metal</li>' %( unit,
floor(RR(f(unit))) ) )

    unit = 100
    html('<li>uncover %s units pay %s metal</li>' %( unit,
floor(RR(f(unit))) ) )

    unit = 300
    html('<li>uncover %s units pay %s metal</li>' %( unit,
floor(RR(f(unit))) ) )

    html('</ul>')

show(plot(f, xmin=1, xmax=10))
show(plot(f, xmin=1, xmax=100))
show(plot(f, xmin=1, xmax=1000))
```

q 2

s 7

Plot of $f(x) = 2x \log(x^7 \log(x)) + 20$

- uncover 1 unit pay 20 metal
- uncover 3 units pay 70 metal
- uncover 5 units pay 201 metal
- uncover 10 units pay 762 metal
- uncover 25 units pay 3646 metal
- uncover 50 units pay 10732 metal
- uncover 75 units pay 19592 metal
- uncover 100 units pay 29710 metal
- uncover 300 units pay 136659 metal





