

## SAT

Which of the following numbers is divisible by 3 and 5, but not by 2?

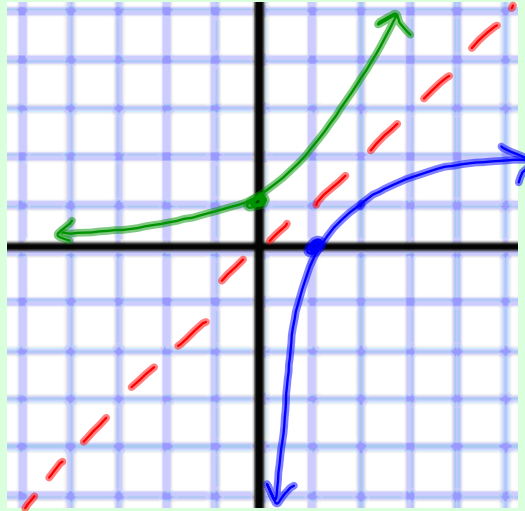
a. 955

b. 975

~~c. 990~~

d. 995

~~e. 999~~



	<u><math>y = a^x</math></u>	→	<u><math>y = \log_a x</math></u>
Domain	<u><math>x \in \mathbb{R}</math></u>	→	<u><math>x &gt; 0</math></u>
Range	<u><math>y &gt; 0</math></u>	→	<u><math>y \in \mathbb{R}</math></u>
Intercept	<u><math>y: (0, 1)</math></u>	→	<u><math>x: (1, 0)</math></u>
Asymptote	<u><math>y = 0</math></u>	→	<u><math>x = 0</math></u>
Horizontal Shift	<u><math>y = a^{x+b}</math></u>	→	<u><math>y = \log_a(x+b)</math></u>
Vertical Shift	<u><math>y = a^x + b</math></u>	→	<u><math>y = \log_a x + b</math></u>
Reflection over x	<u><math>y = -a^x</math></u>	→	<u><math>y = -\log_a x</math></u>
Reflection over y	<u><math>y = a^{-x}</math></u>	→	<u><math>y = \log_a(-x)</math></u>

Exponential Form

$$4^3 = 64$$

$$6^{-2} = \frac{1}{36}$$

$$49^{\frac{1}{2}} = 7$$

$$10^2 = 100$$

$$e^{1/2} = \sqrt{e}$$

$$a^x = b$$

$$\log_a b = x$$

Logarithmic Form

$$\log_4 64 = 3$$

$$\log_6 \frac{1}{36} = -2$$

$$\log_{49} 7 = \frac{1}{2}$$

$$\log_{10} 100 = 2$$

$$\log_e = \ln \quad \ln \sqrt{e} = \frac{1}{2}$$

Exponential Form

$$27^{\frac{1}{3}} = 3$$

$$16^{\frac{1}{2}} = 4$$

$$3^3 = 27$$

$$10^{-1} = \frac{1}{10}$$

$$e^5 = e^5$$

Logarithmic Form

$$\log_{27} 3 = \frac{1}{3}$$

$$\log_{16} 4 = \frac{1}{2}$$

$$\log_3 27 = 3$$

$$\log_{\frac{1}{10}} = -1$$

$$\ln e^5 = 5$$

$$\log_e e^5 = 5$$

What is a "log"? A log is exponent.

So, what is... think:  $3^x = 81$

$$\log_3 81 = 4$$

$$\log_2 8 = 3$$

$$\log_7 7 = 1$$

$$\log_{10} 100 = 2$$

$$\log_3 \sqrt{3} = \frac{1}{2}$$

$$\log_{11} \sqrt[5]{11^3} = \frac{3}{5}$$

$$\log_2 \frac{1}{8} = -3$$

$$\log_4 1 = 0$$

$$\log_5 \frac{1}{25} = -2$$

Log Properties  
Any Base

Log Properties  
Base 10

Log Properties  
Base e

$$\log_a 1 = 0$$

$$\log 1 = 0$$

$$\ln 1 = 0$$

$$\log_a a = 1$$

$$\log 10 = 1$$

$$\ln e = 1$$

$$\log_a a^y = y$$

$$\log 10^y = y$$

$$\ln e^y = y$$

**Classwork: WS Exercise 4A**

**Homework Assignment:**

**page 363-364**

**(7-17, 55-71, 91-97 all odds)**