



Exponential Function Solution Equation - Decay (Discrete) Scenario to Rate

1

A whale population starts at 200. Each subsequent year it declines by a certain percent. After 3 years it has decreased to a population of 166 whales.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = -\left(\frac{166}{200}\right)^{\frac{1}{3}} - 1$	B	$r = -\left(\frac{166}{200}\right)^{\frac{1}{3}} - 1$
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C	$r = +\left(\frac{166}{200}\right)^{\frac{1}{3}} + 1$
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2

A toxin starts at a concentration of 900mg/L. Each daily dialysis reduces it by a certain percent. After 5 days it has decreased to a concentration of 813mg/L.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = -\left(\frac{813}{900}\right)^{\frac{1}{5}} - 1$	B	$r = +\left(\frac{813}{900}\right)^{\frac{1}{5}} + 1$
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3

A whale population starts at 700. Each subsequent year it declines by a certain percent. After 4 years it has decreased to a population of 480 whales.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = -\left(\frac{480}{700}\right)^{\frac{1}{4}} - 1$	B	$r = -\left(\frac{480}{700}\right)^{\frac{1}{4}} - 1$
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C	$r = +\left(\frac{480}{700}\right)^{\frac{1}{4}} + 1$
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4

A bird population starts at 400. Each subsequent year it declines by a certain percent. After 5 years it has decreased to a population of 293.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = +\left(\frac{293}{400}\right)^{\frac{1}{5}} + 1$	B	$r = -\left(\frac{293}{400}\right)^{\frac{1}{5}} - 1$
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C	$r = -\left(\frac{293}{400}\right)^{\frac{1}{5}} - 1$
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5

A toxin starts at a concentration of 400mg/L. Each hourly dialysis reduces it by a certain percent. After 5 hours it has decreased to a concentration of 361mg/L.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = -\left(\frac{361}{400}\right)^{\frac{1}{5}} - 1$	B	$r = +\left(\frac{361}{400}\right)^{\frac{1}{5}} + 1$
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C	$r = -\left(\frac{361}{400}\right)^{\frac{1}{5}} - 1$
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6

A toxin starts at a concentration of 200mg/L. Each weekly dialysis reduces it by a certain percent. After 9 weeks it has decreased to a concentration of 114mg/L.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = +\left(\frac{114}{200}\right)^{\frac{1}{9}} + 1$	B	$r = -\left(\frac{114}{200}\right)^{\frac{1}{9}} - 1$
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C	$r = -\left(\frac{114}{200}\right)^{\frac{1}{9}} - 1$
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7

A whale population starts at 500. Each subsequent year it declines by a certain percent. After 3 years it has decreased to a population of 376 whales.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = +\left(\frac{376}{500}\right)^{\frac{1}{3}} + 1$	B	$r = -\left(\frac{376}{500}\right)^{\frac{1}{3}} - 1$
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C	$r = -\left(\frac{376}{500}\right)^{\frac{1}{3}} - 1$
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8

A whale population starts at 900. Each subsequent year it declines by a certain percent. After 8 years it has decreased to a population of 548 whales.

Rearrange the exponential equation to solve for for the rate given this scenario?

A	$r = -\left(\frac{548}{900}\right)^{\frac{1}{8}} - 1$	B	$r = -\left(\frac{548}{900}\right)^{\frac{1}{8}} - 1$
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C	$r = +\left(\frac{548}{900}\right)^{\frac{1}{8}} + 1$
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