

# Practice Quiz 7

Show All Work

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MTH U121

\_\_\_\_\_  
Name

1. Solve for  $x$ :  $8^{5x+7} = 3$

2. Solve for  $x$ :  $8^{5x+7} = 3^{x+19}$

3. Solve for  $x$ :  $8 \cdot e^{5x+7} = 3^{x+19}$

4. A student is researching the growth of genetically modified fruit flies for a 6 credit honors thesis course. From careful observation the student has determined that an initial batch of 5,000 fruit flies grows to 7,250 in nine weeks. Assuming that the growth rate follows the exponential law  $A(t) = A_0e^{kt}$  answer the following.

a. Find the value of the constant  $k$ .

b. Starting from 5000 fruit flies, how many will there be in fourteen weeks?

5. A student is researching the growth of genetically modified fruit flies for a 6 credit honors thesis course. From careful observation the student has determined that an initial batch of 5,000 fruit flies grows to 7,250 in nine weeks. Assuming that the growth rate follows the exponential law  $A(t) = A_0e^{kt}$ , How many weeks does it take for 5,000 fruit flies to grow to 8,250?

**ANSWERS:** 1)  $-1.29434$ ; 2)  $0.679408$ ; 3)  $3.02308$ ; 4a)  $0.0412848$  b)  $8912.24$ ; 5)  $12.1298$ ;

# Practice Quiz 7

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\_\_\_\_\_  
Name

1. Solve for  $x$ :  $8^{5x+4} = 7$

2. Solve for  $x$ :  $8^{5x+4} = 7^{x+10}$

3. Solve for  $x$ :  $8 \cdot e^{5x+4} = 7^{x+10}$

9. A student is researching the growth of genetically modified fruit flies for a 6 credit honors thesis course. From careful observation the student has determined that an initial batch of 1,000 fruit flies grows to 3,000 in four weeks. Assuming that the growth rate follows the exponential law  $A(t) = A_0e^{kt}$  answer the following.

a. Find the value of the constant  $k$ .

b. Starting from 1000 fruit flies, how many will there be in eleven weeks?

10. A student is researching the growth of genetically modified fruit flies for a 6 credit honors thesis course. From careful observation the student has determined that an initial batch of 1,000 fruit flies grows to 3,000 in four weeks. Assuming that the growth rate follows the exponential law  $A(t) = A_0e^{kt}$ , How many weeks does it take for 1,000 fruit flies to grow to 5,000?

**ANSWERS:** 1)  $-0.612843$ ; 2)  $1.3183$ ; 3)  $4.3809$ ; 4a)  $0.274653$  b)  $20515.6$ ; 5)  $5.85989$ ;