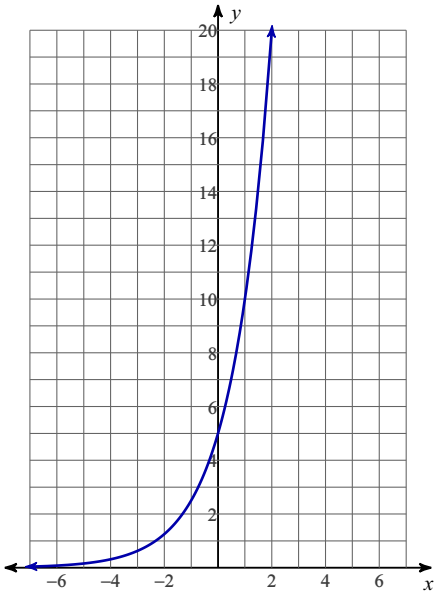
Algebra 1 - Mr. Allen-Black Name_____

Graphs of Exponential Functions

Date_____ Period____

Write an exponential equation in the form of $f(x) = a \cdot b^x$ for each graph.

1)



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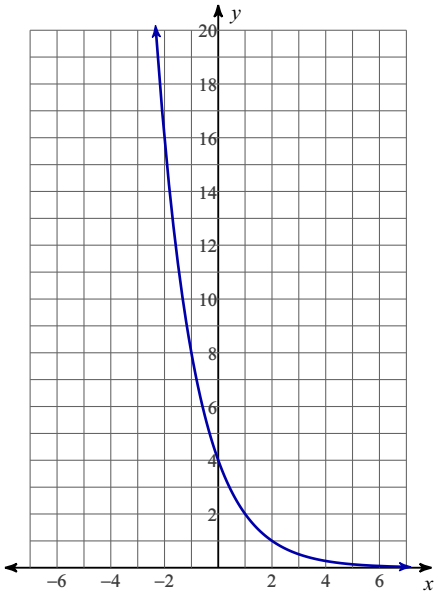

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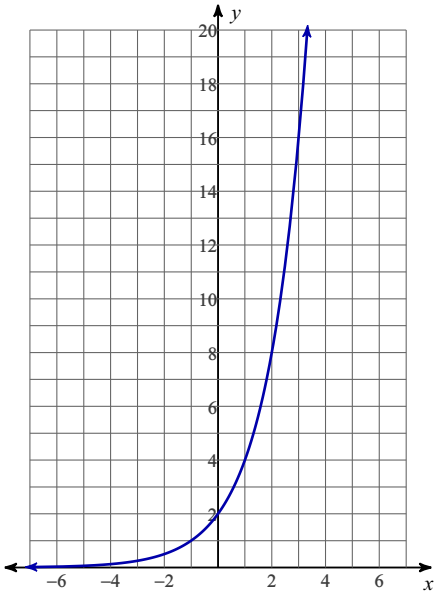

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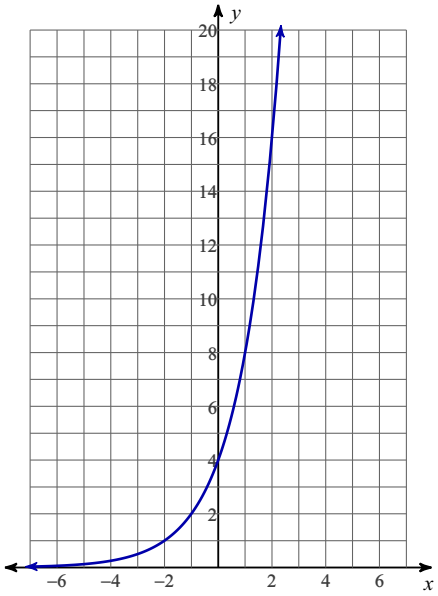

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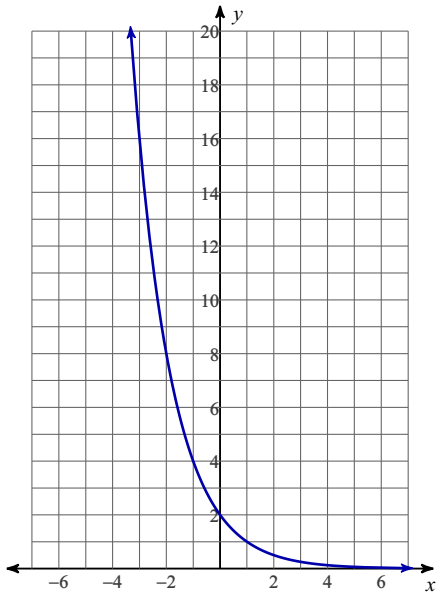

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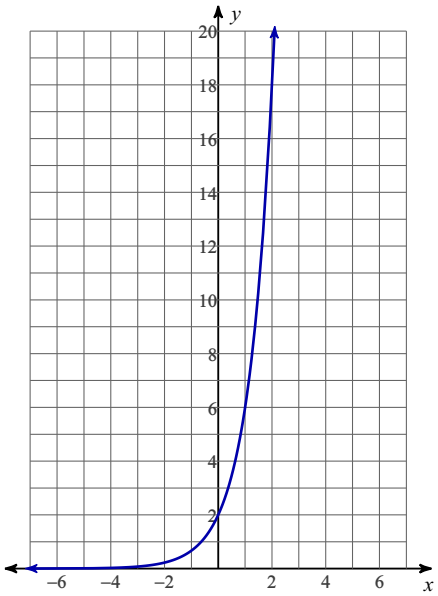
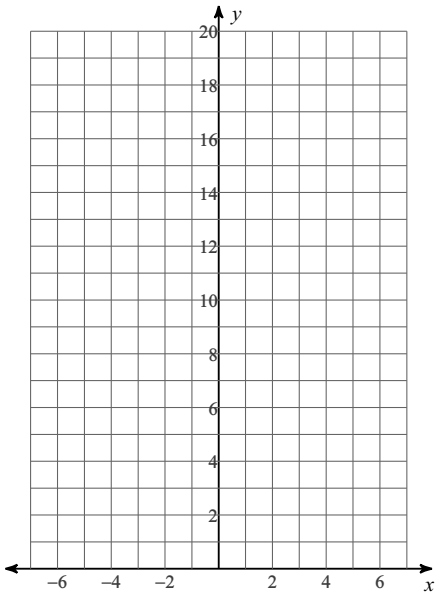
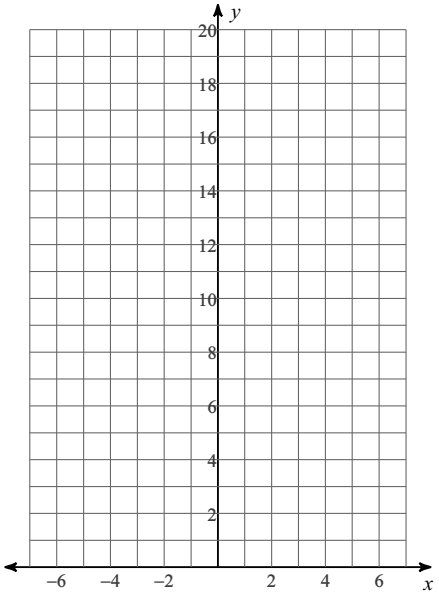


Sketch the graph of each function.

7) $f(x) = 5 \cdot \left(\frac{1}{2}\right)^x$



8) $f(x) = 2 \cdot 3^x$



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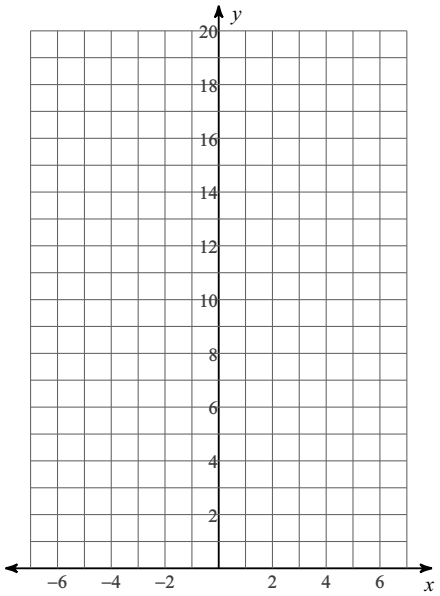
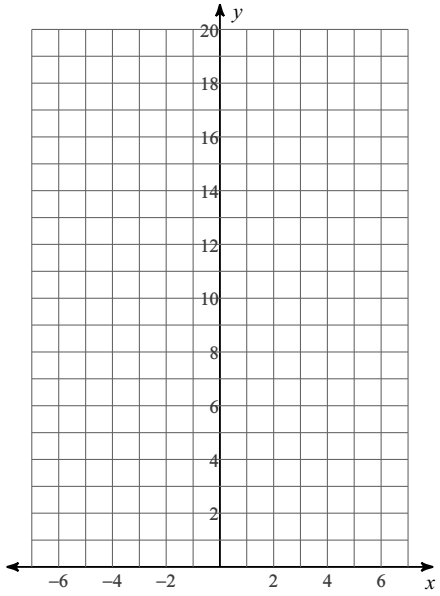
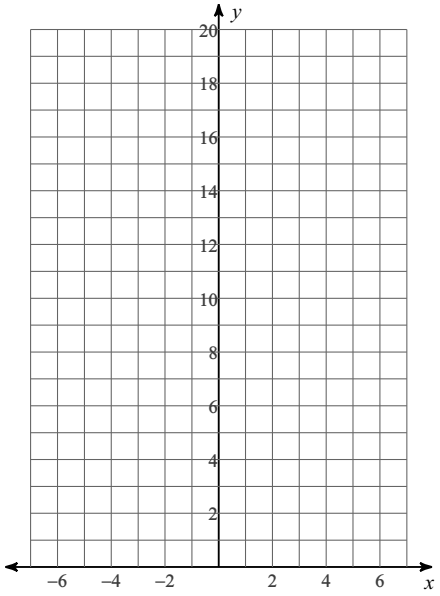


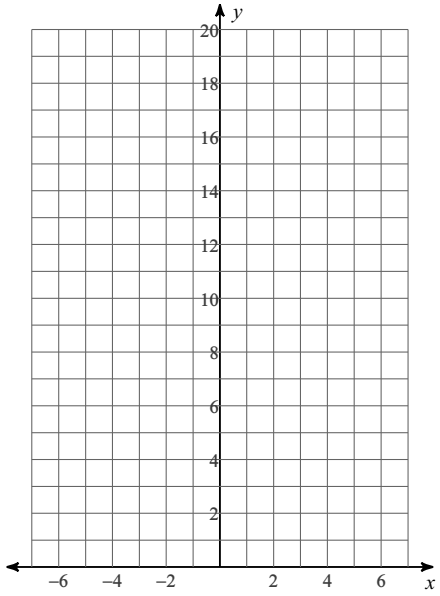
10) $f(x) = 3 \cdot \left(\frac{1}{2}\right)^x$



11) $f(x) = 3 \cdot 2^x$



12) $f(x) = 2 \cdot 2^x$



MIXED REVIEW: Simplify. Your answer should contain only positive exponents.

13) $3m^4n^{-3} \cdot 3m^4n^2$

14) $2b \cdot 3a^2b^3 \cdot a^{-4}$

15) $\left(2m^2n^3\right)^{-1} \cdot m^2n^4$

16) $\left(2x^0y^{-4}\right)^3 \cdot \left(x^2y^{-4}\right)^0$

17) $\dfrac{3a^{-2}b^2 \cdot a^2b^3}{2a^{-3}}$

18) $\dfrac{3m^{-4}n^3}{m^3n^2 \cdot 2nm^4}$

19) In order to control plant eating insects, Mr. Wilson released 150 ladybugs in the DA Sculpture Garden. The ladybug population is expected to increase at a rate of 8% each month.

a) Write an equation that will predict the number of ladybugs over time.

b) How many ladybugs would we expect there to be after 5 months?

c) How many ladybugs would there be after one year?

20) A $36,000 car is expected to depreciate at a rate of 2.5% each month.

a) Write an equation that will calculate the car's value over time.

b) How much would the car be worth in 8 months?

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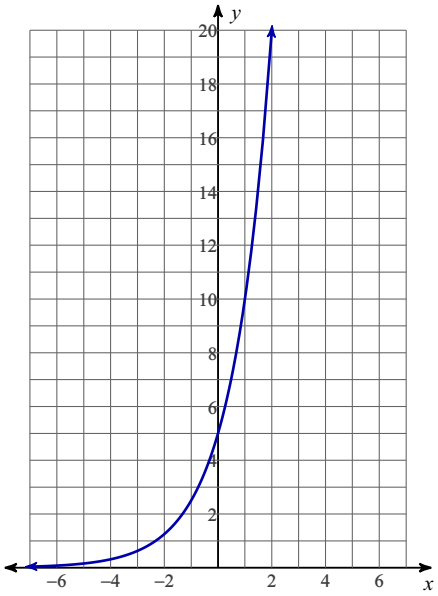
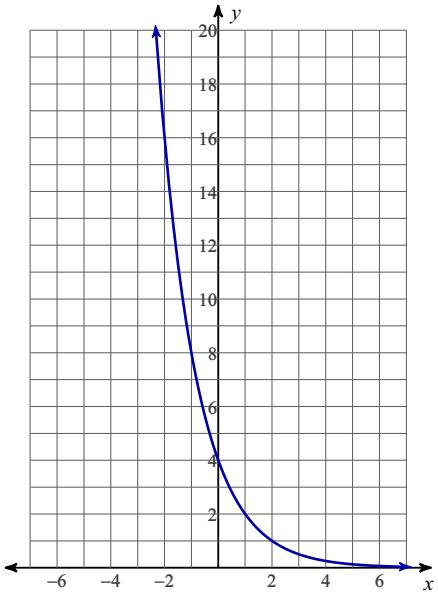


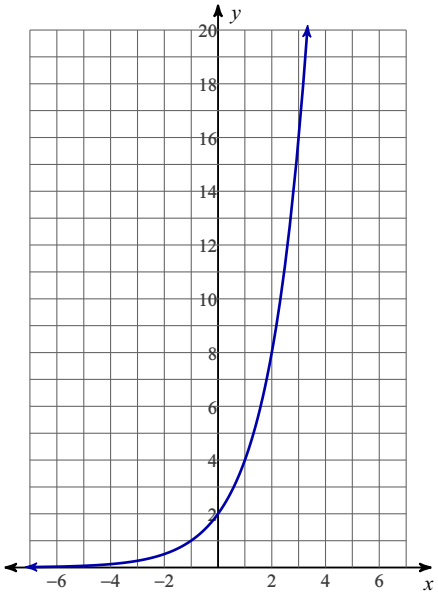
$f(x) = 5 \cdot 2^x$

2)



$f(x) = 4 \cdot \left(\frac{1}{2}\right)^x$

3)



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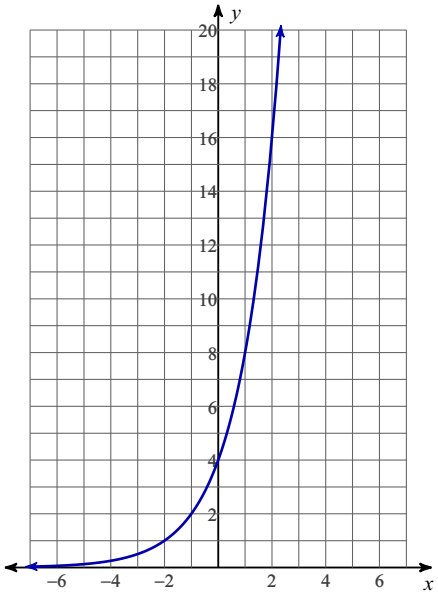

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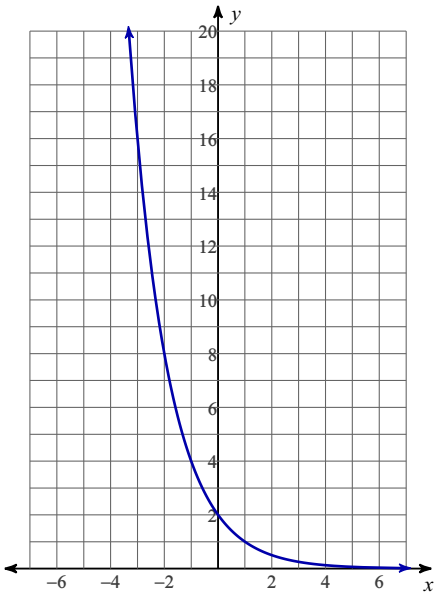

$f(x) = 2 \cdot \left(\frac{1}{2}\right)^x$

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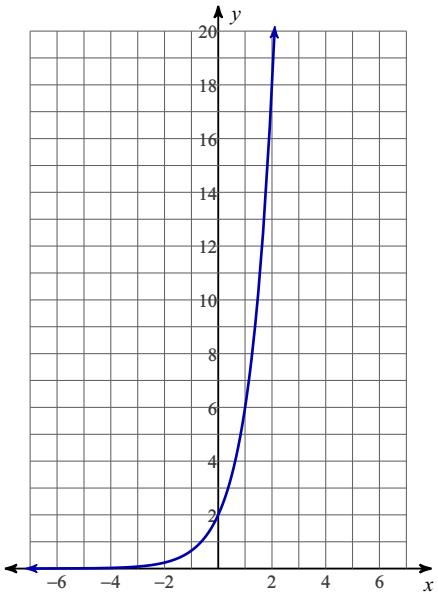

$f(x) = 2 \cdot 3^x$

Sketch the graph of each function.

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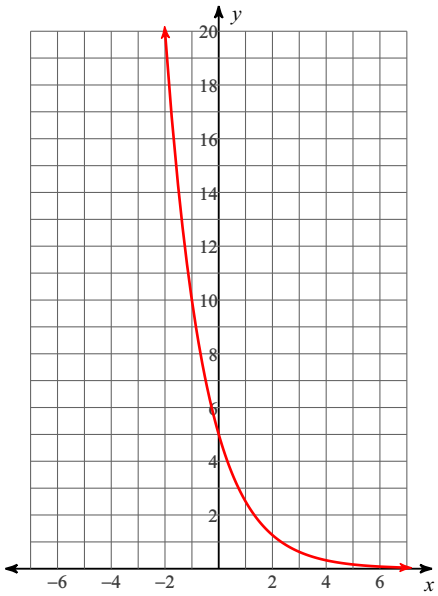

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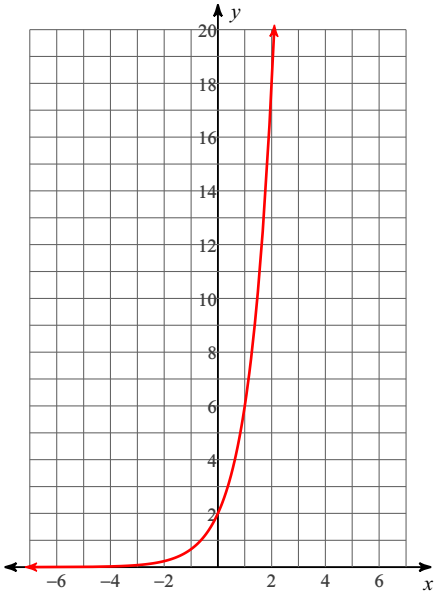

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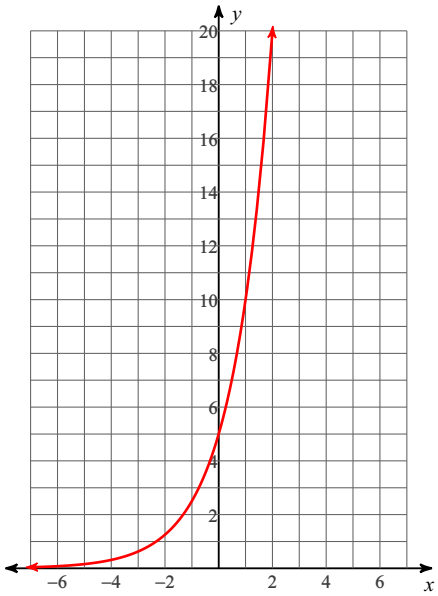

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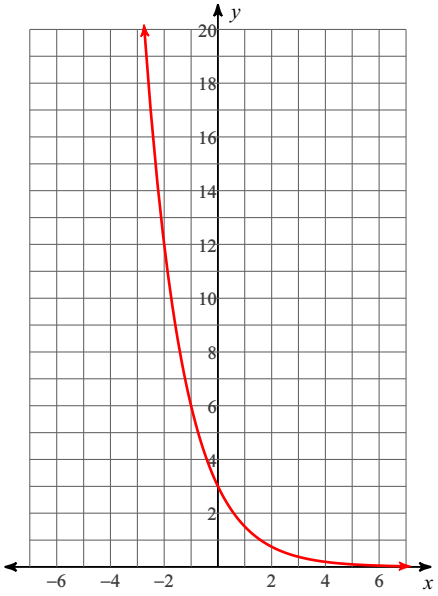

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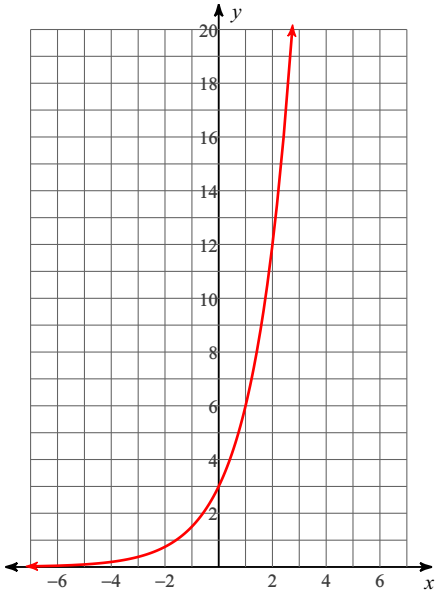

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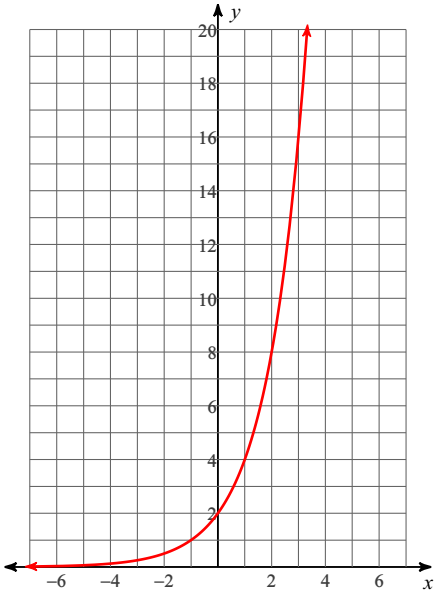

MIXED REVIEW: Simplify. Your answer should contain only positive exponents.

13) $3m^4n^{-3} \cdot 3m^4n^2$

$\frac{9m^8}{n}$

14) $2b \cdot 3a^2b^3 \cdot a^{-4}$

$\frac{6b^4}{a^2}$

15) $(2m^2n^3)^{-1} \cdot m^2n^4$

$\frac{n}{2}$

16) $(2x^0y^{-4})^3 \cdot (x^2y^{-4})^0$

$\frac{8}{y^{12}}$

17) $\frac{3a^{-2}b^2 \cdot a^2b^3}{2a^{-3}}$

$\frac{3a^3b^5}{2}$

18) $\frac{3m^{-4}n^3}{m^3n^2 \cdot 2nm^4}$

$\frac{3}{2m^{11}}$

19) In order to control plant eating insects, Mr. Wilson released 150 ladybugs in the DA Sculpture Garden. The ladybug population is expected to increase at a rate of 8% each month.

a) Write an equation that will predict the number of ladybugs over time.

b) How many ladybugs would we expect there to be after 5 months?

c) How many ladybugs would there be after one year?

a) $L = 150 \cdot 1.08^m$
b) 220 Ladybugs
c) 378 Ladybugs

20) A $36,000 car is expected to depreciate at a rate of 2.5% each month.

a) Write an equation that will calculate the car's value over time.

b) How much would the car be worth in 8 months?

c) How much would the car be worth in 1.5 years?

a) $V = 36000 \cdot 0.975^m$
b) $29,399.46
c) $22,823.68