Exponential growth and decay in real life worksheet – Grade 9

Grade 9 · Mixed level · 20 questions · **Version X5875**

Name: _____ Date: _____ Score: ___ / 20

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1. A car loses 15% of its value each year. What is the yearly factor?

   A. 0.85 **B.** 1.15 **C.** 0.15 **D.** 15

2. 200 bacteria double every hour. How many are there after 4 hours?

   Answer: _____

3. A town grows 8% a year. What is the yearly growth factor?

   A. 0.92 **B.** 0.08 **C.** 8 **D.** 1.08

4. A video has 700 views, and views triple each day. How many views are there after 2 days?

   Answer: _____

5. A medicine has a half-life of 10 hours. 64 mg is taken. How much is left after 20 hours, in mg?

   Answer: _____

6. 900 bacteria double every hour. How many are there after 2 hours?

   Answer: _____

7. A video has 400 views, and views triple each day. How many views are there after 2 days?

   Answer: _____

8. A town of 90000 grows 2% a year. What is its population after 2 years, to the nearest whole person?

   Answer: _____

9. A 10000 dollar car loses 20% of its value each year. What is it worth after 2 years, in dollars? Round to the nearest cent.

   Answer: _____

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10. Leah invests 5000 dollars at 4% a year, compounded yearly. What is it worth after 4 years, in dollars? Round to the nearest cent.

    Answer: _____

11. Which equation models 700 dollars growing 8% a year for t years?

    A. A = 700(0.92)^t **B.** A = 700(8)^t **C.** A = 700(1.08)^t **D.** A = 700 + 1.08t

12. A 10000 dollar car loses 15% of its value each year. What is it worth after 2 years, in dollars? Round to the nearest cent.

    Answer: _____

13. Nia invests 9000 dollars at 4% a year, compounded yearly. What is it worth after 4 years, in dollars? Round to the nearest cent.

    Answer: _____

14. A town of 90000 grows 4% a year. What is its population after 3 years, to the nearest whole person?

    Answer: _____

15. A virus doubles in cases every 2 days. How many times as many cases are there after 8 days?

    Answer: _____

16. Plan A pays 6000 dollars plus 600 a year. Plan B starts at 6000 and grows 10% a year. Which is ahead after many years?

    A. Plan B **B.** Plan A **C.** They stay equal

17. A price rises 20% one year and falls 20% the next. What is the overall percent change? Use a minus sign for a drop.

    Answer: _____

18. 2000 dollars earns 5% a year. How much more does compound interest give than simple interest after 3 years, in dollars? Round to the nearest cent.

    Answer: _____

19. A loan of 4000 dollars charges 10% a year with nothing paid. After how many whole years is the balance first over 8000 dollars?

    Answer: _____

20. 5000 dollars earns 10% a year. How much more does compound interest give than simple interest after 3 years, in dollars? Round to the nearest cent.

    Answer: _____

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Answer key · Version X5875

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1. **A (0.85)**
2. **3200**
3. **D (1.08)**
4. **6300**
5. **16**
6. **3600**
7. **3600**
8. **93636**
9. **6400.00**
10. **5849.29**
11. **C (A = 700(1.08)^t)**
12. **7225.00**
13. **10528.73**
14. **101238**
15. **16**
16. **A (Plan B)**
17. **-4%**
18. **15.25**
19. **8**
20. **155.00**

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