Math 100

Practice Test #1

Spring 2022

Name_____ **Pledge:** _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

1) 2.59×10^{-6} written in decimal notation is:

A) None of these B) 0.0259 C) 0.0000259 D) 0.00259 E) 0.00000259

2) 6,700,000 written in scientific notation is:

A) 6.7×10^{-7} B) 6.7×10^{7} C) 6.7×10^{-6} D) 6.7×10^{6} E) None of these

3) Which of the following values is the greatest?

A) 0.005 B) 0.00005 C) 5.0×10^{-4} D) 0.05 E) 5×10^{-3}

4) Sears is having an after Christmas sale on bikes. For January only, the price for a $250 bike is reduced 40% What is the sales price of the bike?

A) $150 B) $100 C) None of these D) $125 E) $175

5) If the purchase price of a cart full of items at WalMart is $135.56 before tax, what was the final price of the items after the 5% sales tax is applied in Virginia?

A) $6.78 B) $142.34 C) None of these D) $139.76 E) $163.23

6) The retail price of a lawn mower is $550. The markup is 45%. What is the wholesale price of the lawn mower?

A) $797.50 B) $379.31 C) $1000.00 D) $1797.50 E) None of these

7) The sales price of a jacket is $135.50. If it was marked down 30%, what was the retail price of the jacket before it went on sale?

A) $193.57 B) None of these C) $176.15 D) $154.86 E) $94.85

Find the slope of the line that goes through the pair of points.

8) (2, –2) and (6, 6)

A) –2

B) Undefined

C) 1

D) 2

E) None of these

Write the equation in slope-intercept form, y = mx + b.

9) 3x + 5y= – 2

A) $y = -\frac{3}{5}x - \frac{2}{5}$

B) $y = \frac{3}{5}x + \frac{2}{5}$

C) $y = -\frac{3}{5}x + \frac{2}{5}$

D) $y = x - \frac{2}{5}$

E) None of these

10) What would the graph of model $y = -4x + 25$ yield?

A) An increasing linear model.
B) A parabola that opens up.
C) A decreasing linear model.
D) A parabola that opens down.

11) A salesperson weekly, commision based salary is represented using the following model (where S represents the salary and x represents the number of items sold during a week).

$$S(x) = 300 + 40x$$

What does this equation mean?

A) The weekly salary of the salesperson is \$300 minus \$40 for each sale that is made during the week.
B) The weekly salary of the salesperson is \$40 plus \$300 for each sale that is made during the week.
C) The weekly salary of the salesperson is \$300 plus \$40 for each sale that is made during the week.
D) The weekly salary of the salesperson is \$300 for each sale that is made during the week.
E) None of the above

12) Using the model in question #11, what is the weekly salary of the salesperson if 25 items were sold?

A) \$300 B) \$1000 C) \$400 D) \$1300 E) None of these

Find the coordinate of the vertex of the parabola.

13) $y = 2x^2 - 8x + 9$

A) (2,1) B) (-2,-1) C) (1, 2) D) (-1, 2) E) None of these

14) In problem #13, the graph of the equation would yield:

A) A line that decreases from left to right

B) A parabola that opens down

C) A parabola that opens up

D) None of these

E) A line that increases from left to right

15) $f(x) = 4x + 8+5x^2$ is given the given function. What would the graph be?

A) Linear function that decreases from left to right

B) Quadratic function: Parabola that opens up

C) Quadratic function: Parabola that opens down

D) Linear function that increases from left to right

16) The formula $y = -0.033x^2 + 1.42x$ gives the distance y, in yards, that a football is kicked into the air where x is the horizontal distance the football travels in yards along the ground. How far did the ball travel along the ground?

A) About 43 yards

B) About 27 yards

C) About 21 yards

D) About 14 yards

E) About15 yards

17) If graphed, the model: $y = -2x^2 + 17$would be:

A) A graph that would decrease linearly

B) A graph that would decrease exponentially

C) A graph of a parabola that opens down.

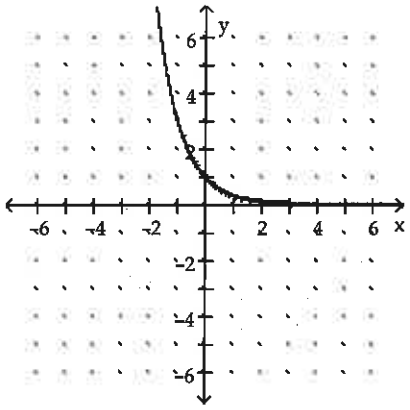
D) A graph that would increase exponentially

E) A graph of a parabola that opens up

Graph the function.

18) $f(x) = (\frac{1}{4})^x$

A)



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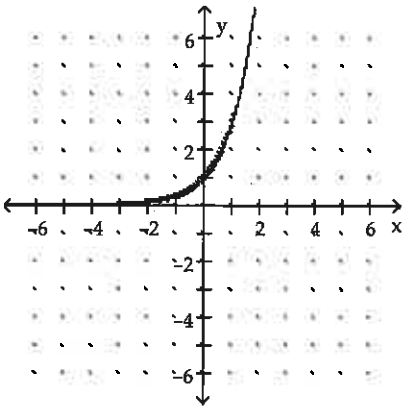

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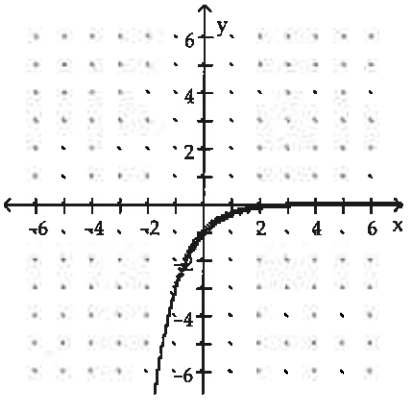

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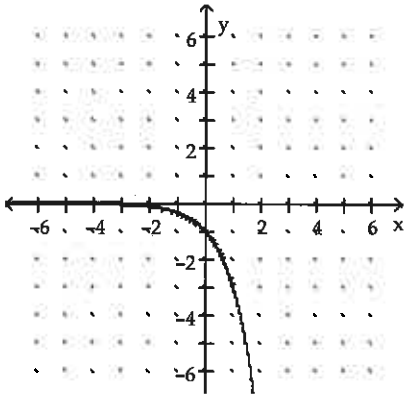


19) Since 1970, the growth in the U.S. population in millions closely fits the exponential function $P(t) = 200e^{0.018t}$, where t is the number of years since 1970. Estimate the population in the year 2020.

A) 237 million B) 332 million C) 554 million D) 876 million E) 492 million

20) A dot com company estimates that its stock value from the time of its initial public offering (IPO) follows the function $V(t) = e^{0.15t+15}$ where V(t) represents the value in year t, with t = 0 being 1996. Estimate the stock value in year 2015.

A) About $34 B) About $32 C) About $23 D) About $56 E) About $12

Convert to logarithmic form.

21) $5^4 = 625$

A) $\log_4 625 = 5$ B) $\log_5 625 = 4$ C) $\log_{625} 5 = 4$ D) None of these

Convert to exponential form.

22) $\log 10{,}000 = 4$

A) $4^3 = 10{,}000$ B) $10^4 = 10{,}000$ C) $1000^1 = 1000$ D) $10^2 = 100$ E) None of these

23) Evaluate ln (125) to four decimal places.

A) 0.2397 1 B) 2.5675 C) 3.5263 D) 4.8283

24) Write the equation $(3)^{-2} = \frac{1}{9}$ in logarithmic form.

A) $\log_{-2}(\frac{1}{9}) = 3$ B) $\log_3(\frac{1}{9}) = 2$ C) $\log_{-3}(\frac{1}{9}) = 2$ D) $\log_3(\frac{1}{9}) = -2$

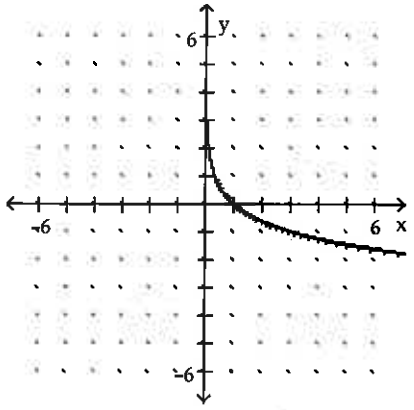
25) log (72)

A) 1.857 B) None of these C) 1 D) 4.277 E) 0.4343

Graph the function.

26) $y = e^x$

A)



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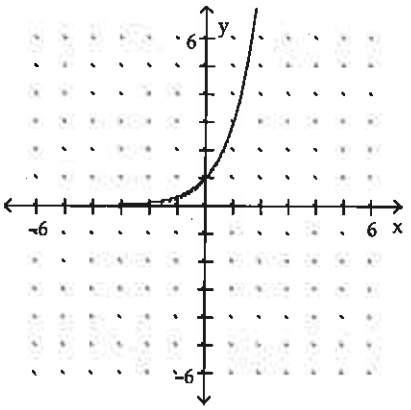

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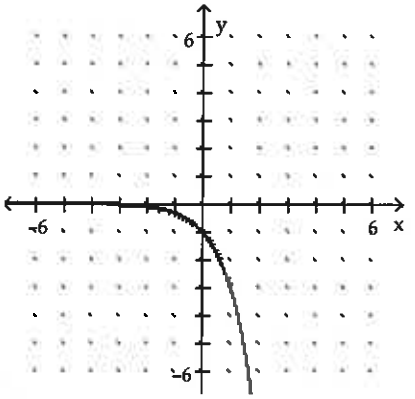

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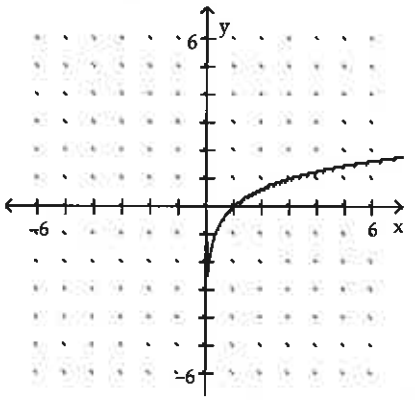

Solve the problem below.

27) The approximate percentage of a girl's adult height that she has reached at age x is given by the model

$P = 29 + 48.8 \log(x + 1)$

where P is the percentage of adult height and x is the age of the girl. What percentage of adult height has the girl reached at age 10?

A) 79.8%

B) None of these

C) 65.5%

D) 72.3%

E) 84.5%