

Writing Exponential Functions

1. The graph of which exponential function passes through the points (0, 4) and (1, 24)?
A. $y = 4(6)^x$ **B.** $y = 3(8)^x$ **C.** $y = 2(2)^x$ **D.** $y = 10(3)^x$
2. Use the equation of the exponential function whose graph passes through the points (0, -3) and (2, -48) to find the value of y when $x = -2$.
A. $-\frac{3}{4}$ **B.** $-\frac{3}{8}$ **C.** $-\frac{3}{16}$ **D.** 48
3. Use the equation of the exponential function whose graph passes through the points (0, -2) and (2, -50) to find the value of y when $x = -2$.
A. $-\frac{1}{100}$ **B.** 50 **C.** $-\frac{2}{25}$ **D.** $-\frac{1}{50}$

Logarithmic/Exponential Forms

4. Write the equation $4^3 = 64$ in logarithmic form.
A. $\log_4 3 = 64$ **B.** $\log_3 4 = 64$ **C.** $\log_{64} 4 = 3$ **D.** $\log_4 64 = 3$
5. Write the equation $\log_{12} 144 = 2$ in exponential form.
A. $144^2 = 12$ **B.** $12^2 = 144$ **C.** $2^{12} = 144$ **D.** $144^{12} = 2$
6. Write the equation $6561^{\frac{1}{4}} = 9$ in logarithmic form.
A. $\log_{\frac{1}{4}} 9 = 6561$ **B.** $\log_{6561} 9 = \frac{1}{4}$
C. $\log_9 6561 = \frac{1}{4}$ **D.** $\log_{\frac{1}{4}} 6561 = 9$

Solving Exponential & Logarithmic Equations

7. Solve $\left(\frac{1}{36}\right)^n = 216^{n+5}$.
A. 10 **B.** 3 **C.** -3 **D.** -10
8. Solve $\log_{\frac{1}{5}} x = -1$.
A. $\frac{1}{25}$ **B.** -5 **C.** 5 **D.** $-\frac{1}{5}$
9. Solve $\log_4 (m - 3) + \log_4 (m + 3) = 2$.
A. $\sqrt{11}$ **B.** 5 **C.** 1 **D.** -5.5
10. Solve $\log_6 10 + \log_6 x = \log_6 40$.
A. 180 **B.** 4 **C.** 5 **D.** 30
11. Solve $\ln (x + 2) = 3$.
A. 22.0855 **B.** 18.0855 **C.** 20.0855 **D.** -0.9014
12. Solve $4 + 3e^{5x} = 27$.
A. 0.4074 **B.** 0.4394 **C.** 2.0369 **D.** 0.1769

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11. _____

12. _____

Arithmetic Means

1. Find the two arithmetic means between 6 and 30.
 A. 12, 24 B. 14, 22 C. 12, 18 D. 18, 18
2. Find the two arithmetic means between 4 and 22.
 A. 10, 16 B. 8, 16 C. 8, 12 D. 13, 13

1. _____

2. _____

Arithmetic Series

3. Find S_n for the arithmetic series in which $a_1 = 4$, $d = 3$, and $a_n = 61$.
 A. 20 B. 1280 C. 64 D. 650
4. Find the sum of the arithmetic series $8 + 5 + 2 + (-1) + \dots + (-13)$.
 A. 1 B. -20 C. 50 D. 29
5. Find S_n for the arithmetic series in which $a_1 = 3$, $d = \frac{1}{2}$, and $a_n = \frac{17}{2}$.
 A. 27 B. 54 C. $\frac{139}{2}$ D. 69
6. Find S_n for the arithmetic series in which $a_1 = 3$, $d = \frac{1}{2}$, and $a_n = 15$.
 A. 225 B. 9 C. 45 D. 210

3. _____

4. _____

5. _____

6. _____

Terms of a Geometric Sequence

7. Find the sixth term of the geometric sequence for which $a_1 = 4$ and $r = 3$.
 A. 247 B. 972 C. 733 D. 2916
8. Find the sixth term of the geometric sequence for which $a_1 = 5$ and $r = 3$.
 A. 1215 B. 3645 C. 9375 D. 23

7. _____

8. _____

ALSO... Try to do problem #23 on page 639 in your textbook!

Finite & Infinite Geometric Series

9. Find the sum of the geometric series $128 - 64 + 32 - \dots$ to 8 terms.
 A. 85 B. 255 C. 86 D. $\frac{85}{2}$
10. Find $\sum_{n=1}^6 5(-4)^{n-1}$.
 A. 6825 B. -4095 C. -1023 D. -5120
11. Find $\sum_{n=1}^7 4(-3)^{n-1}$.
 A. -2186 B. 2188 C. -728 D. 2916
12. $5 + 4 + \frac{16}{5} + \dots$
 A. 20 B. 25 C. $\frac{25}{4}$ D. does not exist
13. $4 + 3 + \frac{9}{4} + \dots$
 A. $\frac{16}{7}$ B. 16 C. -12 D. does not exist

9. _____

10. _____

11. _____

12. _____

13. _____

Fundamental Counting Principle

- LICENSE PLATES** A license plate has one letter (not I or O) followed by five digits. How many different plates are possible?
A. 1200 B. 2,400,000 C. 725,760 D. 100,000
- How many 3-letter identification codes are possible if no letter is repeated?
A. 17,576 B. 2600 C. 78 D. 15,600
- How many 5-digit codes are possible if 0 cannot be used and no digit can be repeated?
A. 15,120 B. 45 C. 30,240 D. 59,049

Permutation & Combinations

- A group has 6 men and 5 women. How many ways can a committee of 3 men and 2 women be formed?
A. 200 B. 150 C. 7200 D. 2400
- A clown has 7 balloons, each a different color. There are 5 children. How many ways can the clown give each child a balloon?
A. 21 B. 5040 C. 42 D. 2520

Probability - Independent VS Dependent & Mutually Exclusive VS Inclusive

- A red die and a blue die are tossed. What is the probability that the red die shows a 5 and the blue die shows an even number?
A. $\frac{1}{36}$ B. $\frac{1}{18}$ C. $\frac{1}{12}$ D. $\frac{2}{3}$
- Tickets are numbered 1 to 50 and are placed in a box. Three tickets are drawn at random without replacement. What is the probability that the numbers are all greater than 35?
A. $\frac{27}{1000}$ B. $\frac{13}{560}$ C. $\frac{3}{10}$ D. $\frac{1}{7840}$
- From 4 yellow and 9 blue marbles, 3 are selected. What is the probability that all 3 are yellow or all 3 are blue?
A. $\frac{4}{143}$ B. $\frac{4}{13}$ C. $\frac{42}{143}$ D. $\frac{84}{143}$
- A card is drawn from a deck of cards. What is the probability of drawing a club or a face card? (*Hint: A face card is a jack, queen, or king.*)
A. $\frac{25}{52}$ B. $\frac{3}{13}$ C. $\frac{11}{26}$ D. $\frac{7}{13}$
- A red die and a blue die are tossed. What is the probability that the red die shows a 3 and the blue die shows a number greater than 3?
A. $\frac{1}{10}$ B. $\frac{1}{5}$ C. $\frac{3}{10}$ D. $\frac{3}{5}$
- A card is drawn from a standard deck of cards. What is $P(\text{heart or a } 6)$?
A. $\frac{9}{26}$ B. $\frac{17}{52}$ C. $\frac{1}{4}$ D. $\frac{4}{13}$

1. _____

2. _____

3. _____

4. _____

5. _____

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11. _____

Mean, Median, and Mode

12. Which measure of central tendency is *not* a good representation of the data?
A. mean **B.** mode **C.** median **D.** middle

Record Low Temperatures in Honolulu, HI (°F)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
52	53	55	56	60	65	66	67	66	61	57	54

Source: www.weather.com

13. Which measure of central tendency is *not* a good representation of the data?
A. middle **B.** median **C.** mode **D.** mean

Record High Temperatures in Anchorage, Alaska (°F)											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
50	48	51	65	77	85	82	82	73	61	53	48

Source: www.weather.com

Normal Distribution

14. **CAR SALES** The mean stay of a car on a lot before being sold is 21 days, with a standard deviation of 3 days. The lengths of stay are normally distributed. What percent of the cars are sold after having been on the lot between 18 and 24 days?
A. 95% **B.** 34% **C.** 68% **D.** 5%
15. **POTTERY** The diameters of pottery bowls are normally distributed. The mean of the diameters is 22 cm and the standard deviation is 2 cm. What percent of the bowls have diameters between 18 and 26 cm?
A. 13.5% **B.** 34% **C.** 68% **D.** 95%

12. _____

13. _____

14. _____

15. _____

Trig. Ratios

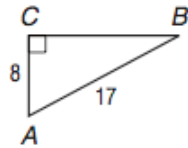
1. Find the value of
- $\csc A$
- .

A. $\frac{8}{17}$

B. $\frac{17}{15}$

C. $\frac{17}{8}$

D. $\frac{15}{17}$



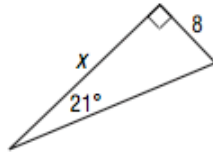
2. Which equation can be used to find
- x
- ?

A. $\sin 21^\circ = \frac{8}{x}$

B. $\tan 21^\circ = \frac{x}{8}$

C. $\tan 21^\circ = \frac{8}{x}$

D. $\sin 21^\circ = \frac{x}{8}$



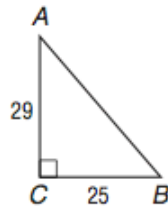
3. Find
- A
- to the nearest degree.

A. 49°

B. 37°

C. 41°

D. 53°



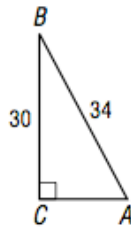
4. Find the value of
- $\sec A$
- .

A. $\frac{17}{8}$

B. $\frac{8}{17}$

C. $\frac{15}{17}$

D. $\frac{17}{15}$



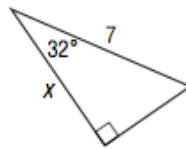
5. Which equation can be used to find
- x
- ?

A. $\sin 32^\circ = \frac{x}{7}$

B. $\cot 32^\circ = \frac{7}{x}$

C. $\tan 32^\circ = \frac{x}{7}$

D. $\cos 32^\circ = \frac{x}{7}$



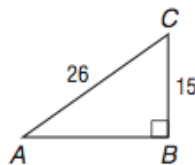
6. Find
- A
- to the nearest degree.

A. 55°

B. 30°

C. 35°

D. 60°

**Degrees and Radians**

7. Rewrite
- 90°
- in radian measure.

A. $\frac{\pi}{2}$

B. $\frac{\pi}{90}$

C. $\frac{\pi}{4}$

D. $\frac{2}{\pi}$

8. Rewrite
- $\frac{\pi}{6}$
- radians in degree measure.

A. $30\pi^\circ$

B. 30°

C. 120°

D. 60°

9. Rewrite
- $\frac{5\pi}{4}$
- radians in degree measure.

A. 450°

B. 225°

C. $225\pi^\circ$

D. 112.5°

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

Exact Values10. Find the exact value of $\cot 450^\circ$.

- A. 0 B. undefined C. 1 D. -1

11. Find the exact value of $\cos\left(-\frac{\pi}{4}\right)$.

- A. $\frac{\sqrt{2}}{2}$ B. $-\frac{\sqrt{2}}{2}$ C. $\frac{\sqrt{3}}{2}$ D. $-\frac{\sqrt{3}}{2}$

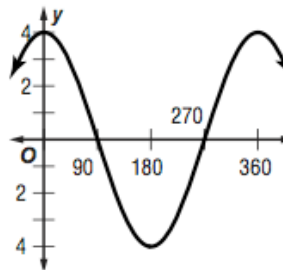
12. Find the exact value of $\sin 870^\circ$.

- A. $-\frac{1}{2}$ B. $\frac{1}{2}$ C. $-\frac{\sqrt{3}}{2}$ D. $\frac{\sqrt{3}}{2}$
-

Graphs of Trigonometric Functions

13. Which equation is graphed?

- A. $y = 4 \sin \theta$ B. $y = 4 \cos \theta$
C. $y = \sin 4\theta$ D. $y = \cos 4\theta$

14. Find the amplitude of $y = 6 \sin \theta$.

- A. 6 B. π C. -6 D. 2π

15. Find the period of $y = 5 \cos \theta$.

- A. -5 B. 5 C. π D. 2π