Instructional Materials for WCSD Math Common Finals

The Instructional Materials are for student and teacher use and are aligned to the 2017-2018 Course Guides for the following course:

High School:

- **#2228 Algebra 2 Honors Semester 2**

Middle School:

- **#745 ACCEL Algebra 2**

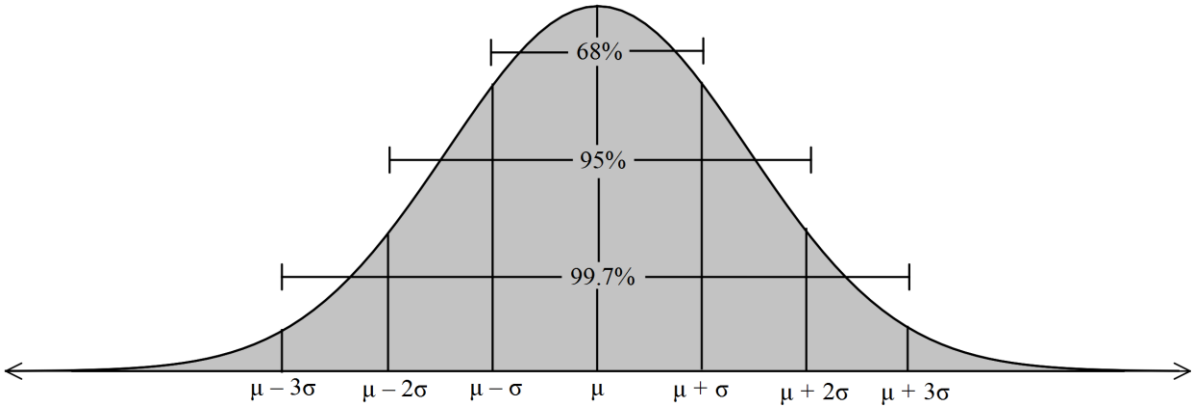
When used as test practice, success on the Instructional Materials does not guarantee success on the district math common final.

Students can use these Instructional Materials to become familiar with the format and language used on the district common finals. Familiarity with standards and vocabulary as well as interaction with the types of problems included in the Instructional Materials can result in less anxiety on the part of the students. The length of the actual final exam may differ in length from the Instructional Materials.

Teachers can use the Instructional Materials in conjunction with the course guides to ensure that instruction and content is aligned with what will be assessed. The Instructional Materials are not representative of the depth or full range of learning that should occur in the classroom.

***Students will be allowed to use a Scientific or graphing calculator on Algebra 2 Honors Semester 1 and Algebra 2 Honors Semester 2 final exams.**

Algebra 2 Honors Semester 2 Test Reference Sheet

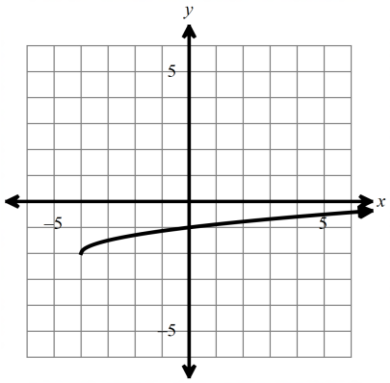


$$z = \frac{x - \mu}{\sigma}$$

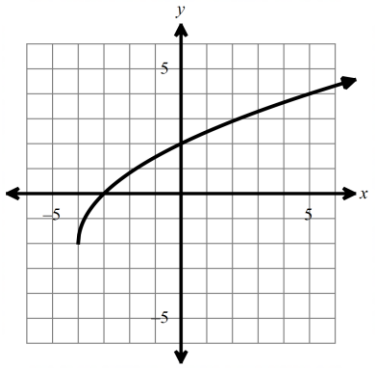
Multiple Choice: *Identify the choice that best completes the statement or answers the question.*

1. The function $f(x) = \frac{1}{2}\sqrt{x-1} - 4$ is translated up two units and left five units. Which of the following is the graph of $f(x)$ after the translations?

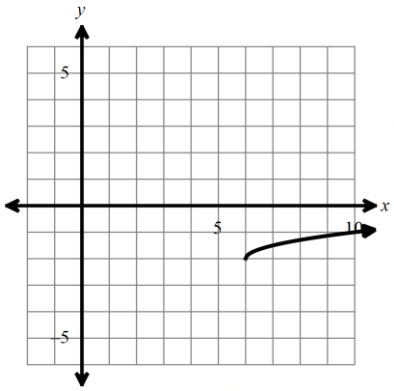
A.



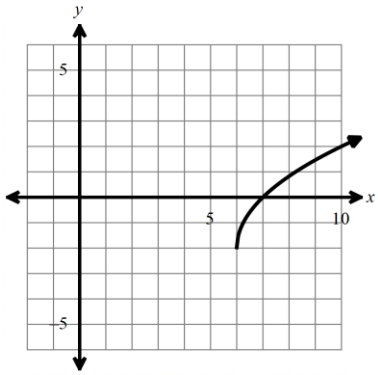
C.



B.



D.



2. Let $f(x) = \sqrt[3]{x}$ and let $g(x)$ be a translation of $f(x)$ expressed as $g(x) = f(x-27)$. What are the coordinates of the *x*-intercept of $g(x)$?

A. $(3, 0)$

B. $(-3, 0)$

C. $(27, 0)$

D. $(-27, 0)$

3. Describe the domain and range of the function $f(x) = -\frac{1}{2}\sqrt[3]{x-9} + 2$

A. Domain: $(-\infty, 9)$
Range: $(-\infty, +\infty)$

B. Domain: $(0, 9)$
Range: $(-2, 0)$

C. Domain: $(-\infty, +\infty)$
Range: $(-2, 9)$

D. Domain: $(-\infty, +\infty)$
Range: $(-\infty, +\infty)$

4. Given the function, $f(x) = a\sqrt{x-h} + k$, which of the following charts properly describes the domain and range?

A.

If $a > 0$	Domain: $all\ real\ numbers$ Range: $all\ real\ numbers$
If $a < 0$	Domain: $all\ real\ numbers$ Range: $all\ real\ numbers$

C.

If $a > 0$	Domain: $x \geq h$ Range: $y \geq k$
If $a < 0$	Domain: $x \geq h$ Range: $y \leq k$

B.

If $a > 0$	Domain: $x \geq h$ Range: $all\ real\ numbers$
If $a < 0$	Domain: $x \leq h$ Range: $all\ real\ numbers$

D.

If $a > 0$	Domain: $x \geq h$ Range: $y \geq k$
If $a < 0$	Domain: $x \leq h$ Range: $y \leq k$

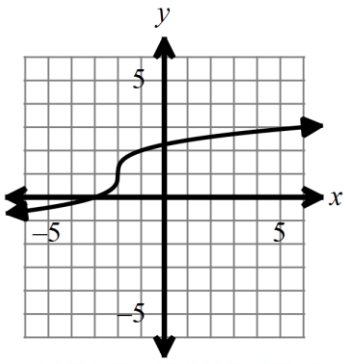
5. Given the graph below, over which interval of x is the function decreasing?

A. Decreasing: $(-\infty, \infty)$

B. Decreasing: $(-\infty, -3]$

C. Decreasing: $(-\infty, -2]$

D. The function is never decreasing.



6. Rewrite $y = \sqrt[3]{64x - 320} - 2$ in an equivalent form to make it easier to graph.

A. $y = 4\sqrt[3]{x-5} - 2$

B. $y = 8\sqrt[3]{x-40} - 2$

C. $y = -4\sqrt[3]{x-5} - 2$

D. $y = -8\sqrt[3]{x-40} - 2$

7. Describe the end behavior of the function $f(x) = \left(\frac{1}{4}\right)^{x+2} - 1$

A. As $x \to -\infty, f(x) \to -1$ and as $x \to +\infty, f(x) \to +\infty$.

B. As $x \to -\infty, f(x) \to -2$ and as $x \to +\infty, f(x) \to -\infty$.

C. As $x \to -\infty, f(x) \to \infty$ and as $x \to +\infty, f(x) \to -1$.

D. As $x \to -\infty, f(x) \to \infty$ and as $x \to +\infty, f(x) \to -2$.

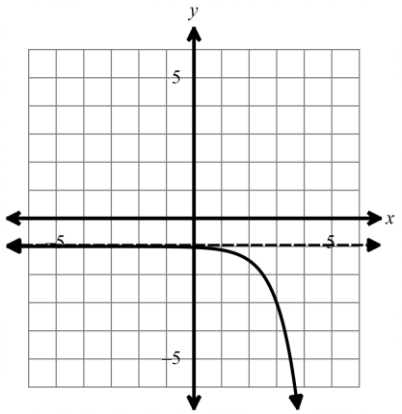
8. Which equation is represented by the graph below?

A. $y = -2 \cdot 4^{x-2} - 1$

B. $y = -2 \cdot 4^{x-3} - 1$

C. $y = 2 \cdot 4^{x-2} - 1$

D. $y = 2 \cdot 4^{x-3} - 1$



9. Which of the following statements are true about the rational expression given below?

$$\frac{(-8)^{5/3}}{(-243)^{3/5}}$$

A. The numerator can be rewritten as $\sqrt[5]{(-8)^3}$.

B. The numerator can be rewritten as $(8)^{-(5/3)}$.

C. The expression can be rewritten as $\frac{(3)^3}{(2)^5}$.

D. The expression can be rewritten as $\frac{(-2)^5}{(-3)^3}$.

10. Which of the following expressions is equivalent to $2m^2$?

A. $\dfrac{2^{-4} \cdot \sqrt[3]{m^{11}}}{2^{-3} \cdot \sqrt[3]{m^5}}$

B. $\dfrac{\left(2m^{1/5}\right)^4}{8m^{3/10}}$

C. $\dfrac{6 \cdot \sqrt[3]{2m^7}}{\sqrt[3]{54m}}$

D. $\dfrac{1}{(32^{1/5}m^{2/3})^{-3}}$

11. Two students make claims about the expression $y^{3/2}$. Each student's work supporting their claim is shown below.

Student #1	Student #2
Claim: $y^{3/2} = \left(\sqrt[3]{y}\right)^2$	Claim: $y^{3/2} = \sqrt{y^3}$
Work: $y^{3/2} = \left(y^{1/3} \cdot y^{1/3}\right)$	Work: $y^{3/2} = (y \cdot y \cdot y)^{1/2}$
$= \left(\sqrt[3]{y} \cdot \sqrt[3]{y}\right)$	$= \sqrt{y \cdot y \cdot y}$
$= \left(\sqrt[3]{y}\right)^2$	$= \sqrt{y^3}$

Which of the following statements about each student's work and claim is true?

A. Student 1 makes a correct claim and their supporting work shown is correct.

B. Student 1 makes an incorrect claim because $y^{3/2} = (y^2 \cdot y^2 \cdot y^2)^{1/3}$

C. Student 2 makes a correct claim and their supporting work shown is correct.

D. Student 2 makes an incorrect claim because $y^{3/2} = (y \cdot y)^{1/3}$.

12. Simplify $\sqrt[5]{x^7} \cdot \sqrt[3]{x}$

A. $x^{22/15}$

C. x^2

B. x

D. $x^{26/15}$

13. Let $f(x) = 16x^{2/3}$ and $g(x) = \frac{4}{x}$. Find $g\big(f(x)\big)$.

A. $g\big(f(x)\big) = \frac{\sqrt[3]{x}}{4x}$

C. $g\big(f(x)\big) = \frac{16 \cdot \sqrt[3]{16x}}{x}$

B. $g\big(f(x)\big) = \frac{64 \cdot \sqrt[3]{x^2}}{x}$

D. $g\big(f(x)\big) = \frac{\sqrt[3]{16x}}{4x}$

14. Determine whether $f(x) = x - 3$ and $g(x) = -x + 3$ are inverse functions. Explain.

A. $f(x)$ and $g(x)$ are inverse functions because $f(x) + g(x) = 0$

B. $f(x)$ and $g(x)$ are inverse functions because $f\big(g(x)\big) = -x$

C. $f(x)$ and $g(x)$ are not inverse functions because $\frac{f(x)}{g(x)} = -1$

D. $f(x)$ and $g(x)$ are not inverse functions because $f\big(g(x)\big) = -x$

15. Find the inverse of $f(x) = \frac{1}{6}x^3 + 8$

A. $f^{-1}(x) = 6x^3 - 8$

C. $f^{-1}(x) = \sqrt[3]{6x} - 2$

B. $f^{-1}(x) = \sqrt[3]{6x + 8}$

D. $f^{-1}(x) = \sqrt[3]{6x - 48}$

16. Solve for x: $\sqrt{x-3} = 5 - \sqrt{x+2}$

A. $x = 7$

B. $x = 3$

C. $x = 13$

D. $x = 15$

17. Solve for x: $x - 5 = \sqrt{x+7}$

A. $x = 2, x = 9$

B. $x = 4$

C. $x = 9$

D. $x = -3, x = 4$

18. A particular jeweler uses the formula $d = \sqrt[3]{\frac{4w}{0.02847}}$ to relate the average diameter (d) of a cultured pearl in millimeters to its weight (w) in carats. The jeweler sells the pearls to customers for \$3.25 per carat. How much would a cultured pearl with a 9.5 mm average diameter cost?

A. \$5.95

B. \$6.10

C. \$19.83

D. \$35.75

19. Scientists have determined that the population for a particular species in a habitat can be modeled by the equation $P = (500t - 180)^{6/7}$. How many years (t) will it take the species to grow to 729 members?

A. $t = 1.77\ years$

B. $t = 4.73\ years$

C. $t = 2.06\ years$

D. $t = 0.93\ years$

20. The population of a certain city between the years 1970 and 2000 is modeled by the function $P(x) = 55000\sqrt{x - 1960}$. In what year was the population of the city 235,000 people?

A. 1973

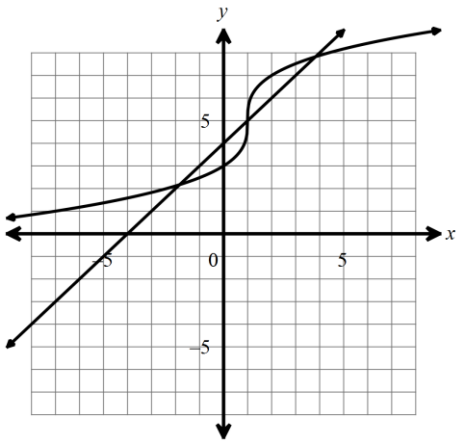
B. 1974

C. 1978

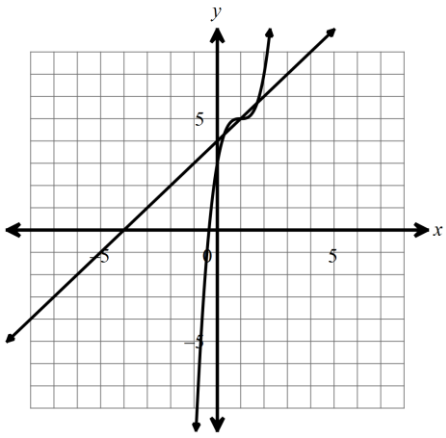
D. 1985

17. A student solves the equation $2\sqrt[3]{x - 1} + 5 = x + 4$ by graphing each side of the equation on the same coordinate plane. Which of the following graphs shows the correct solutions to the equation above?

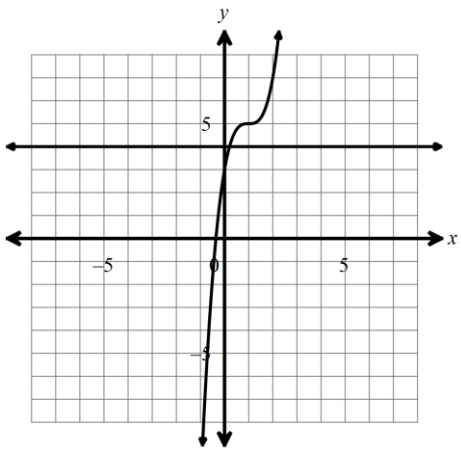
A.



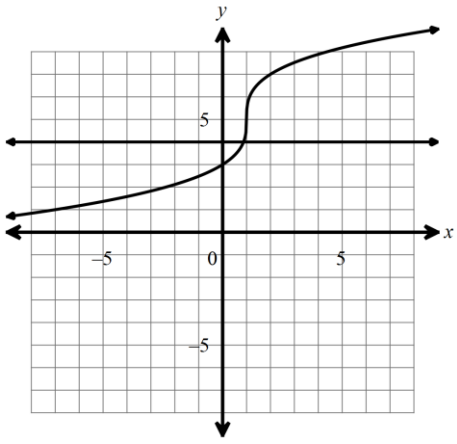
C.



B.



D.



22. Which of the following functions would NOT produce the same graph as $g(x) = 256^x$?

A. $h(x) = 2^{8x}$

B. $h(x) = 4^{4x}$

C. $h(x) = 8^{3x}$

D. $h(x) = 16^{2x}$

23. When evaluating the function $f(x) = 5 \cdot 3^{x+2} - 6$ for any real number x, what must be true about the value of $f(x)$?

A. The value of $f(x)$ is always greater than -2

B. The value of $f(x)$ is always greater than -6

C. The value of $f(x)$ is always negative

D. The value of $f(x)$ is always positive

24. Which of the following equations represent exponential decay?

I.	$y = \frac{1}{2} \cdot \left(\frac{2}{4}\right)^{-x}$
II.	$y = \frac{1}{5} \cdot \left(\frac{7}{3}\right)^{-2x}$
III.	$y = 2 \cdot \left(\frac{1}{2}\right)^{2x}$
IV.	$y = 4 \cdot \left(\frac{5}{2}\right)^{x}$

A. I and IV

B. II and IV

C. II and III

D. III and IV

25. Solve for x: $\frac{1}{343} = 7^{5x+1}$

A. $x = -\frac{4}{5}$

C. $x = -\frac{2}{5}$

B. $x = \frac{4}{5}$

D. $x = \frac{2}{5}$

26. Solve for x: $2.5^{8x-4} = \left(\frac{125}{8}\right)^{2x+4}$

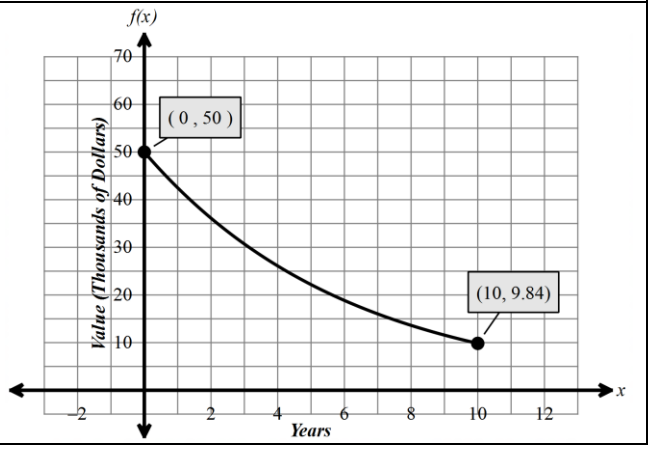
A. $x = 8$

C. $x = 4$

B. $x = \frac{4}{3}$

D. $x = \frac{7}{8}$

27. Two types of cars have different projected depreciation values. Their changing values are modeled as shown. Find the average rate of change of the value of each car over the 10-year period. Which of the following statements is correct?

Car 1	Car 2
$f(x) = 40(0.90)^x$ (thousands of dollars in x years)	

A. The value of Car 1 decreases more rapidly.

B. The value of Car 2 decreases more rapidly.

C. The value of Car 1 decreased by an average of $13,947 per year.

D. The value of Car 2 decreased by an average of $9,840 per year.

28. Scientists experimenting with the effects of a new antibiotic on a particular bacteria population found that the a population of bacteria can be modeled with the function $f(t) = 2000(1 - 0.25)^t$, where t is the time in days the antibiotic is taken. Scientists have also discovered that this antibiotic can only be taken for a maximum 5 days before it is considered harmful to the patient. In order to consider a person "cured" of the bacterial infection, an initial population of 2000 bacteria must be reduced to less than 200. Is it possible to cure a person with the new antibiotic?

A. Yes, the bacteria population will be less than 200 after 4 days.

B. Yes, the bacteria population will be less than 200 after 6 days.

C. No, the bacteria population will be less than 200 after 7 days.

D. No, the bacteria population will be less than 200 after 9 days.

29. A cup of soup is placed on a kitchen table. The temperature, *y* (degrees Fahrenheit), of the soup can be modeled as $y = 68 + 122e^{-0.075x}$, where *x* represents time, in minutes. Which of the following statements correctly describes the graph of the function?

A. The *x*-intercept of the function is at $(190, 0)$.

B. The *y*-intercept of the function is at $(0, 190)$.

C. The temperature of the soup is initially at 68°F.

D. The temperature of the soup approaches 122°F over time.

30. Which of the following sets of equations are NOT inverses of each other?

A. $y = \log_2(x - 1)$
$y = 2^x + 1$

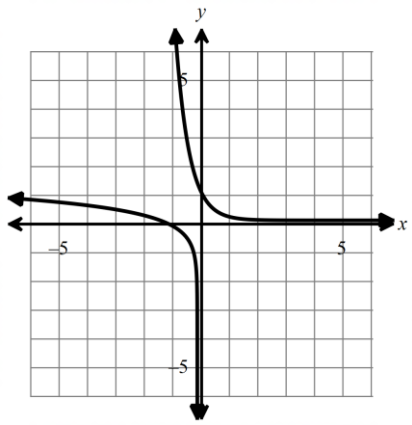
B. $y = \log_3(x) + 7$
$y = 3^{x-7}$

C. $y = 4^x + 1$
$y = \log_4(x) - 1$

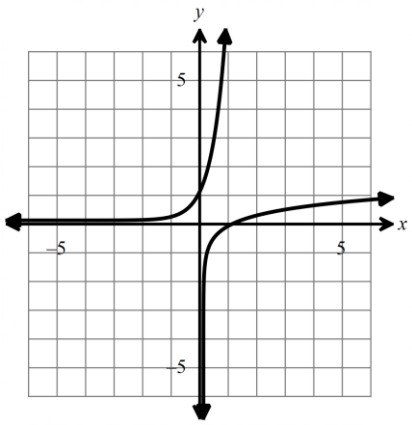
D. $y = 5^{x+2}$
$y = \log_5(x) - 2$

31. Which graph represents the function $y = \log_8 x$ and its inverse?

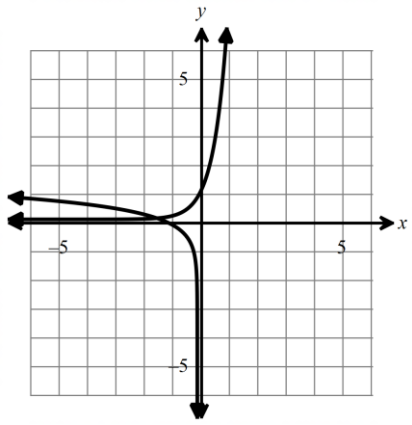
A.



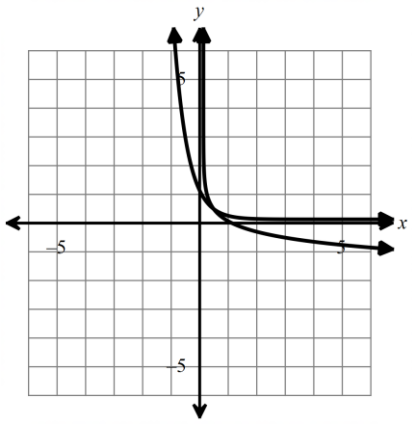
C.



B.



D.



32. Find the *x*-intercept and *y*-intercept of the function $f(x) = -2\log_4(x + 8)$.

A. *x*-intercept: $(-7, 0)$
y-intercept: $(0, -3)$

C. *x*-intercept: $(-7, 0)$
y-intercept: $(0, -4)$

B. *x*-intercept: $(-8, 0)$
y-intercept: $(0, -3)$

D. *x*-intercept: $(-8, 0)$
y-intercept: $(0, -4)$

33. Simplify : $\log_3(81) - \ln(e^7) - \log(10^8) + \log_5(625)$

A. -6.34

B. -7

C. -10.3

D. -15

34. Which of the following expressions is equivalent to $\ln\left(\frac{5\cdot\sqrt[3]{a}}{b^2c}\right)$?

A. $\ln(5) + \frac{1}{3}\ln(a) - 2\ln(b) - \ln(c)$

B. $\ln(5) + 3\ln(a) - \frac{1}{2}\ln(b) - \ln(c)$

C. $\ln(5) + \frac{1}{3}\ln(a) - \frac{1}{2}\ln(b) + \ln(c)$

D. $\ln(5) + 3\ln(a) - 2\ln(b) + \ln(c)$

35. Give an exact solution for the following equation: $62 + 2\cdot 8^x = 14 + 3\cdot 8^x$

A. $x = 6$

B. $x = \frac{\log 48}{8}$

C. $x = \log 6$

D. $x = \frac{\log 48}{\log 8}$

36. Solve for x: $\log_9(x+7) + \log_9(x) = \log_9(2x) + \log_9(x+5)$

A. $x = 0, x = -3$

B. $x = -3$

C. $x = 0$

D. *no solution*

37. Solve: $\log_4(x+3) = 2 - \log_4(x-3)$

A. $x = -5, x = 5$

B. $x = -5$

C. $x = 5$

D. *no solution*

38. If $f(x) = 5(10)^{3x}$, what value of x makes $f(x) = 30$?

A. $x = \log 2$

B. $x = \dfrac{\log 6}{3}$

C. $x = \log 3$

D. $x = \dfrac{\log 6}{\log 2}$

39. Three people in the business club are competing to see who can double their investment in the shortest amount of time. Each person starts with an initial amount of $3000, but they each choose different investment scenarios. Who will double their investment first based on the following information?

Person A	**Person B**	**Person C**
Interest compounded quarterly $A = P\left(1 + \frac{r}{n}\right)^{nt}$ Rate: 6.2%	Interest compounded daily $A = P\left(1 + \frac{r}{n}\right)^{nt}$ Rate: 5.9%	Interest compounded continuously $A = Pe^{rt}$ Rate: 5.7%

A. Person A doubles their investment first.

B. Person B doubles their investment first.

C. Person C doubles their investment first.

D. They all double their investment at the same time.

40. A sample of two bacteria strains are being studied at a lab. After h hours, the population of Bacteria M is modeled by $M(h) = 20(1.8)^h$, and Bacteria N is modeled by $N(h) = 30(1.65)^h$. When is the population of Bacteria M greater than the population of Bacteria N?

A. The population of Bacteria M is always greater than the population of Bacteria N.

B. The population of Bacteria M is never greater than the population of Bacteria N.

C. The population of Bacteria M is greater until a point between 4 and 5 hours, after which Bacteria N has the greater population.

D. The population of Bacteria N is greater until a point between 4 and 5 hours, after which Bacteria M has the greater population.

41. The graph of which function is stretched vertically by a factor of six and translated two units right from the graph of the parent function?

A. $y = 6\ \log_3(x - 2)$

B. $y = 6(3^{x+2})$

C. $y = \log_3(6x + 2)$

D. $y = 3^{6x-2}$

42. Describe the domain and range of $y = \ln x + 4$

A. Domain: $\{x|all\ real\ numbers\}$
Range: $\{y|all\ real\ numbers\}$

B. Domain: $\{x|x > 4\}$
Range: $\{y|y > 0\}$

C. Domain: $\{x|x > 0\}$
Range: $\{y|y > 4\}$

D. Domain: $\{x|x > 0\}$
Range: $\{y|all\ real\ numbers\}$

43. The graph of an exponential function in the form $y = ab^x$ passes through the points $(3, 12)$ and $(7, 192)$. What is the value of $f(-2)$?

A. $f(-2) = \frac{1}{6}$

B. $f(-2) = \frac{3}{8}$

C. $f(-2) = \frac{3}{4{,}096}$

D. $f(-2) = \frac{3}{262{,}144}$

44. A book publisher is about to release a new novel. If the novel is likely to sell to more than 20% of all book store customers, the company will print 1 million copies of the book. If it is likely to sell to less than 20%, then the company will print 250,000 copies. The publisher sent a survey to book store customers who recently purchased a novel. Of the 300 people surveyed, 78 said there were "very likely" to purchase the new novel. Based on the results the publisher decided to print 1 million copies of the novel. Was this a good decision? Explain why or why not.

A. This was a good business decision since 26% of the people surveyed said they were likely to buy the novel.

B. This was a good business decision since 26% of the people surveyed already bought a novel.

C. This was a poor business decision since the survey only included people who recently purchased a novel. The sample was biased since these people are more likely to purchase another novel. The publisher could make a better decision by surveying 300 randomly selected customers at the book store.

D. This was a poor business decision since the survey only included people who recently purchased a novel. The sample was biased since these people are more likely to purchase another novel. The publisher could make a better decision by surveying the first 300 customers at the book store.

45. Determine which of the following statements are correct about the test scores for two different students shown below.

Student A														
24	25	26	26	27	27	28	28	28	29	29	30	30	31	32

Student B														
15	17	17	18	19	20	20	21	22	23	24	26	27	29	32

A. Student A's data is symmetrical.

B. Student B's data is symmetrical.

C. Student A's data is skewed left.

D. Student B's data is skewed left.

46. In the data set below, determine which of the values is an outlier and describe how it affects the mean and standard deviation.

$$72, 97, 86, 37, 69, 82, 59, 92, 71, 47, 110, 80, 85, 85$$

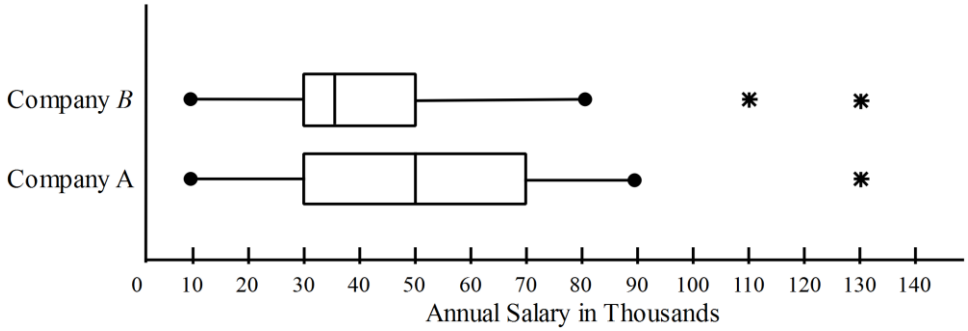
A. 37 is the outlier, causing the mean to decrease and the standard deviation to increase.

B. 37 is the outlier, causing the mean to increase and the standard deviation to decrease.

C. 110 is the outlier, causing the mean to decrease and the standard deviation to increase.

D. 110 is the outlier, causing the mean to increase and the standard deviation to decrease.

47. The box plots below show the distributions of annual salaries for employees of two different companies. Determine which company has a higher percentage of employees that make more then $50,000 and explain your decision.



A. Company A has the higher percentage of employees that make more than $50,000 because the median is $50,000 which means 50% of their employees make more than that.

B. Company B has the higher percentage of employees that make more than $50,000 because the third quartile is $50,000 which means 75% of their employees make more than that.

C. Company A and Company B have about the same percentage of employees that make more than $50,000 because they both have the same range.

D. You cannot determine the percentage of employees that make more than $50,000 for either company because they both include outlier salaries.

48. A standardized test has normal distribution and a mean of 72 with a standard deviation of 5. Find the probability that a score is between 77 and 87 OR 62 and 67.

A. 0.024

B. 0.159

C. 0.207

D. 0.294

49. Mortgage statistics for a particular city show the probability that a new homeowner will occupy a house before moving or selling is normally distributed with a mean of 9.2 years and a standard deviation of 2 years. Using the Standard Normal Table below, what is the probability that a homeowner will sell or move after 5 to 7 years?

z	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
−2	.0228	.0179	.0139	.0107	.0082	.0062	.0047	.0035	.0026	.0019
−1	.1587	.1357	.1151	.0968	.0808	.0668	.0548	.0446	.0359	.0287
−0	.5000	.4602	.4207	.3821	.3446	.3085	.2743	.2420	.2119	.1841
0	.5000	.5398	.5793	.6179	.6554	.6915	.7257	.7580	.7881	.8159
1	.8413	.8643	.8849	.9032	.9192	.9332	.9452	.9554	.9641	.9713
2	.9772	.9821	.9861	.9893	.9918	.9938	.9953	.9965	.9974	.9981

A. 0.1178

B. 0.1536

C. 0.1587

D. 1.8464

Algebra 2 Honors Semester 2 Instructional Materials 2017-2018 Answers

Unit 7		Unit 8		Unit 9		Unit 10	
1.	A	**9.**	D	**22.**	C	**44.**	C
2.	C	**10.**	C	**23.**	B	**45.**	A
3.	D	**11.**	C	**24.**	C	**46.**	A
4.	C	**12.**	D	**25.**	A	**47.**	A
5.	D	**13.**	A	**26.**	A	**48.**	D
6.	A	**14.**	D	**27.**	B	**49.**	A
7.	C	**15.**	D	**28.**	D		
8.	B	**16.**	A	**29.**	B		
		17.	A	**30.**	C		
		18.	C	**31.**	C		
		19.	B	**32.**	A		
		20.	C	**33.**	B		
		21.	A	**34.**	A		
				35.	D		
				36.	D		
				37.	C		
				38.	B		
				39.	A		
				40.	D		
				41.	A		
				42.	D		
				43.	B		

Alternative Item Answers

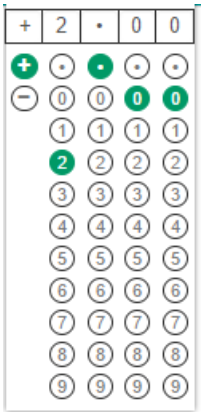
#	IM Ans
6. Alt	H, J
19. Alt	4.73
23. Alt	$-4/5$
27. Alt	G, I, J
29. Alt	F, H, K
48. Alt	0.294

Alternative Item Formats:

As part of the evolution of District Common Math Finals, multiple select and gridded response item types may be piloted on the Spring 2018 exam. The following are examples of items that have been revised from a multiple choice format to a multiple select or gridded response format. These examples are not necessarily reflective of which actual test items will appear in a multiple select or gridded response format.

Possible Item Types:

- Multiple Choice
  - 4 possible answer choices, listed as A, B, C, D options
  - exactly 1 correct answer
- Multiple Select or Multiple Response
  - 5 or more possible answer choices, listed as F, G, H, I, J, etc. options
  - At least 2 or more correct answers
- Gridded Response
  - Free-response item, requiring students to bubble in the digits of their numeric answer for machine scoring



6. **alt** Which of the following statements are true about the rational expression given below? Select all that apply.

$$\frac{(-8)^{5/3}}{(-243)^{3/5}}$$

F. The numerator can be rewritten as $\sqrt[5]{(-8)^3}$.

G. The numerator can be rewritten as $(8)^{-(5/3)}$.

H. The denominator can be rewritten as $((-3)^5)^{3/5}$

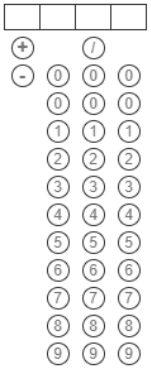
I. The expression can be rewritten as $\frac{(3)^3}{(2)^5}$.

J. The expression can be rewritten as $\frac{(-2)^5}{(-3)^3}$.

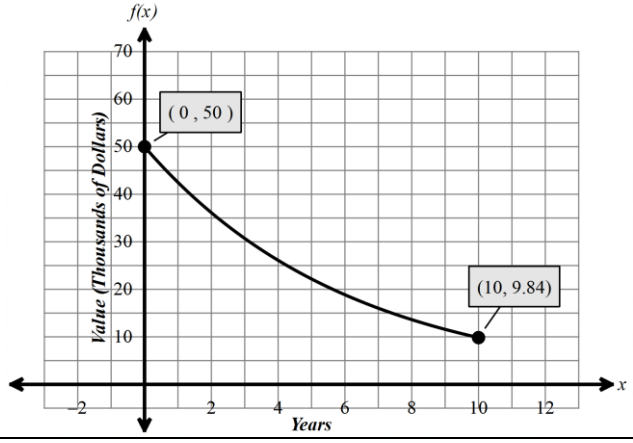
K. The expression can be rewritten as $\frac{\sqrt[5]{(3)^3}}{\sqrt[3]{(2)^5}}$.

19. **alt** Scientists have determined that the population for a particular species in a habitat can be modeled by the equation $P = (500t - 180)^{6/7}$. How many years (t) will it take the species to grow to 729 members? Round your answer to the nearest hundredth.

25. alt Solve for x: $\frac{1}{343} = 7^{5x+1}$



27. alt Two types of cars have different projected depreciation values. Their changing values are modeled as shown. Find the average rate of change of the value of each car over the 10-year period. Which of the following statements is correct? Select all that apply.

Car 1	Car 2
$f(x) = 40(0.90)^x$ (thousands of dollars in x years)	

F. The value of Car 1 decreases more rapidly.

G. The value of Car 1 decreased by an average of $2,605 per year.

H. The value of Car 1 decreased by an average of $13,947 per year.

I. The value of Car 2 decreases more rapidly.

J. The value of Car 2 decreased by an average of $4,016 per year.

K. The value of Car 2 decreased by an average of $9,840 per year.

29. alt A cup of soup is placed on a kitchen table. The temperature, y (degrees Fahrenheit), of the soup can be modeled as $y = 68 + 122e^{-0.075x}$, where x represents time, in minutes. Which of the following statements correctly describes the graph of the function?

F. The temperature of the soup is decreasing.

G. The x-intercept of the function is at $(190, 0)$.

H. The y-intercept of the function is at $(0, 190)$.

I. The temperature of the soup is initially at $68°$F.

J. The temperature of the soup is initially at $122°$F.

K. The temperature of the soup approaches $68°$F over time.

L. The temperature of the soup approaches $122°$F over time.

48. alt A standardized test has normal distribution and a mean of 72 with a standard deviation of 5. Find the probability that a score is between 77 and 87 OR 62 and 67. Round your answer to the nearest thousandth