Instructional Materials for WCSD Math Common Finals

The Instructional Materials are for student and teacher use and are aligned to the 2021-2022 Course Guides for the following courses:

High School Algebra 2 S2

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

Middle School Algebra 2 S2

- **#745 ACCEL Algebra 2**

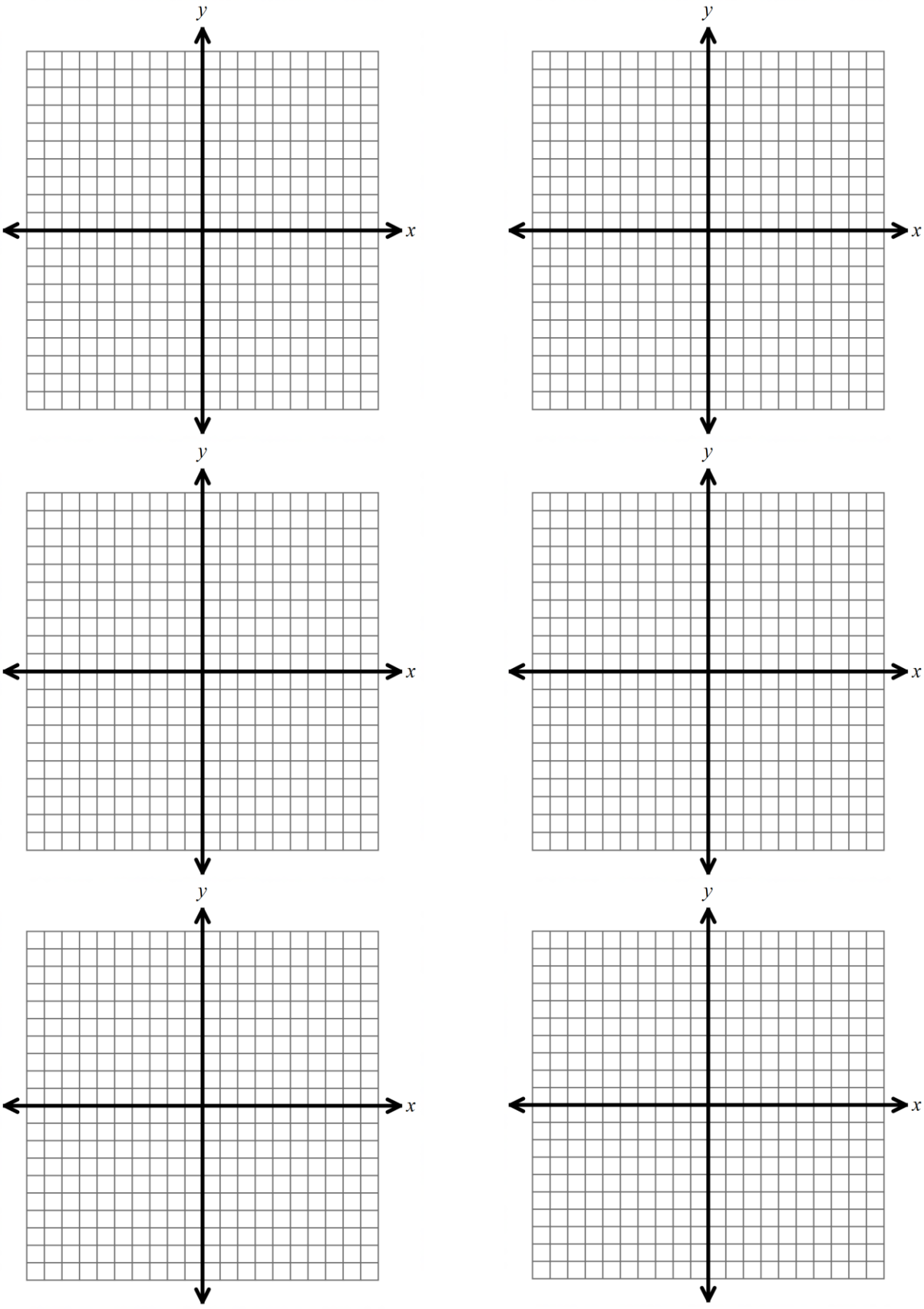
When used as test practice, success on the Instructional Materials does not guarantee success on the district math common final.

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.

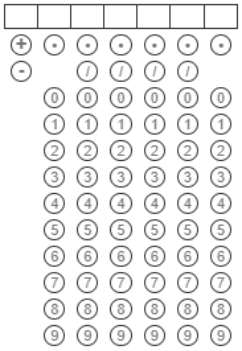
Teachers can use the Instructional Materials in conjunction with the course guides to ensure that instruction and content is aligned with what will be assessed. The Instructional Materials are not representative of the depth or full range of learning that should occur in the classroom.

***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.**

Student Work Area



1. What is the remainder in the division $(6x^3 - x^2 + 4x - 9) \div (2x - 3)$? Bubble your answer in the grid provided below.



2. Find the quotient of $(3x^3 - 44x + 8) \div (x - 4)$?

A. $3x^2 - 12x + 4$

B. $3x^2 - 12x + 4 + \frac{-8}{x-4}$

C. $3x^2 - 32 + \frac{-120}{x-4}$

D. $3x^2 + 12x + 4 + \frac{24}{x-4}$

3. Sketch the graphs of $f(x)$ and $g(x)$ on the same coordinate plane given the following information:

- $f(x)$ has zeros at $-1, 4, 8$
- As $x \to -\infty$, $f(x) \to +\infty$ and as $x \to +\infty$, $f(x) \to -\infty$
- $f(x)$ has a local minimum at approximately $(1, -4)$ and a local maximum at approximately $(6, 3)$
- $g(x) = 2x + 1$

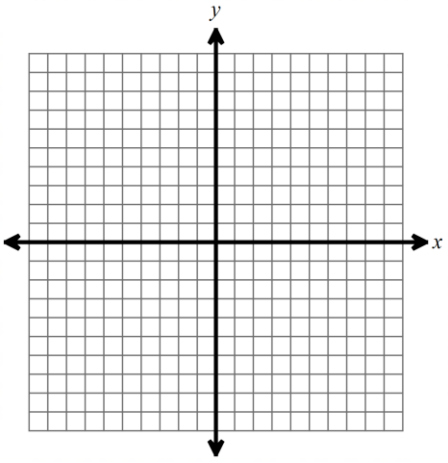
How many real solutions exist when $f(x) = g(x)$?

A. *no real solution*

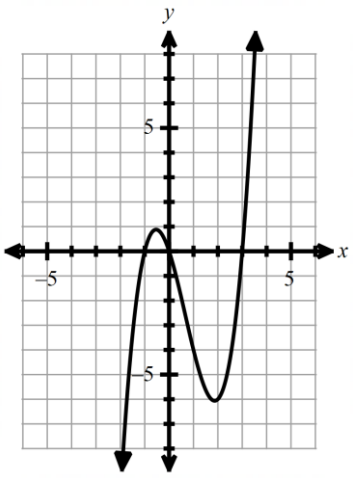
B. 1 *real solution*

C. 2 *real solutions*

D. 3 *real solutions*



4. Which polynomial is graphed below?



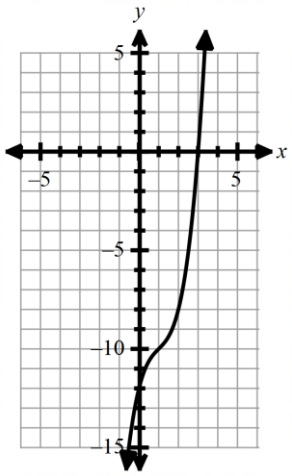
A. $f(x) = (x + 1)(x - 3)$

B. $f(x) = (x - 1)(x + 1)(x + 3)$

C. $f(x) = x(x - 3)(x + 1)$

D. $f(x) = x(x + 3)(x - 1)$

5. The equation $x^3 - 3x^2 + 4x - 12 = 0$ is graphed below. Use the graph to help solve the equation and find all the roots of the function.



A. $x = 3, -2, 2$

B. $x = -12, 1, 3$

C. $x = 3, -2i, 2i$

D. $x = 12, \frac{3 - i\sqrt{7}}{2}, \frac{3 + i\sqrt{7}}{2}$

6. What is the end behavior for the function, $f(x) = (x^4 - 5x - 3)(-9x^5 + 6x^3)$?

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

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

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

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

7. Solve: $10y^3 - 4y^2 - 2y = -5y^3 + 3y^2$

A. $y = -3, y = 0, y = 10$

B. $y = -\frac{1}{5}, y = 0, y = \frac{2}{3}$

C. $y = 0, y = \frac{1 \pm \sqrt{41}}{10}$

D. $y = 0$

8. Find all of the zeros of $f(x) = x^3 - 3x^2 + 4x - 2$.

A. $x = 1 + i, 1 - i, 1$

B. $x = 1$

C. $x = -2, -1, 1, 2$

D. $x = -1, -2i, 2i$

9. Write a polynomial function of least degree that has rational coefficients, a leading coefficient of 1, and the zeros $3i, \sqrt{2}, -4$.

A. $f(x) = x^5 - 4x^4 + 7x^3 + 28x^2 - 18x - 76$

B. $f(x) = x^5 - 4x^4 - 13x^3 - 52x^2 + 36x + 144$

C. $f(x) = x^5 + 4x^4 + 7x^3 + 28x^2 - 18x - 72$

D. $f(x) = x^6 - 9x^4 - 130x^2 + 288$

10. If the function $f(x) = x^3$ is translated left eight units and up ten units, how will the domain and range of the function change?

A. The domain will become $D: \{x | x \geq -8\}$ and the range will become $R: \{y | y \geq 10\}$.

B. The domain will become $D: \{x | x \geq 8\}$ and the range will become $R: \{y | y \geq 10\}$.

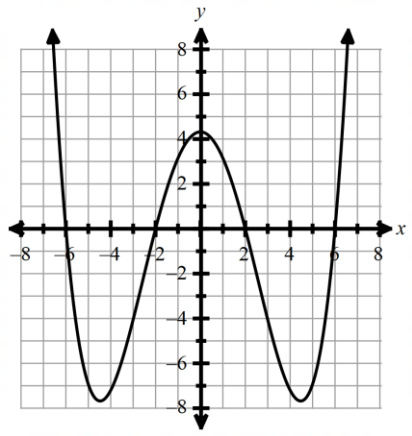
C. The domain will become $D: \{x | x \geq -8\}$ and the range will remain $R: \{y | all\ real\ numbers\}$.

D. The domain will remain $D: \{x | all\ real\ numbers\}$ and the range will remain $R: \{y | all\ real\ numbers\}$.

11. Which of the following functions is odd?

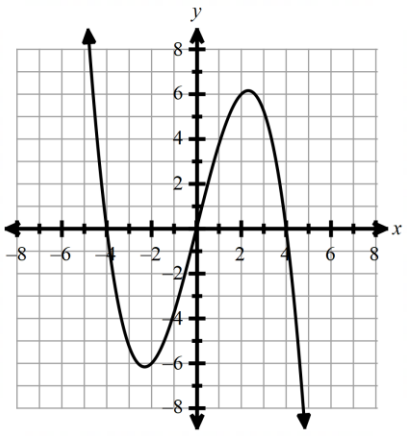
A. $f(x) = 6x^7 - 5x^4 + 8$

B.

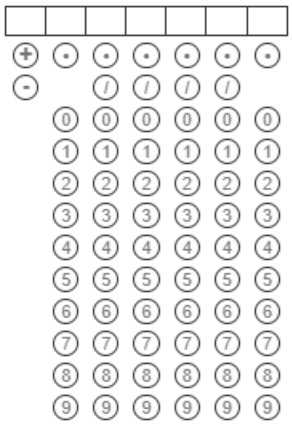


C. $f(x) = -3x^6 + 9$

D.



12. Four painters can paint a house in 14 hours. If the time varies inversely with the number of people painting, how many hours would it take seven painters to paint the same house? Round your answer to the nearest tenth if necessary. Bubble your answer in the grid provided below.



13. Which of the following is the graphing form of $f(x) = \frac{4x-14}{x-6}$?

A. $f(x) = \frac{6}{x-3} + 10$

B. $f(x) = \frac{4}{x-3} + 10$

C. $f(x) = \frac{4}{x-6} + 4$

D. $f(x) = \frac{10}{x-6} + 4$

14. Identify any holes, asymptotes, and intercepts of $f(x) = \frac{x^2-x-6}{x^2+7x+10}$

A. Horizontal Asymptote: $y = -2, 3$
Vertical Asymptote: $x = -5, -2$
Hole: *none*
x-intercept: $(10, 0)$
y-intercept: $(0, -6)$

B. Horizontal Asymptote: *none*
Vertical Asymptote: $x = -5$
Hole at $x = -2$
x-intercept: $(3, 0)$
y-intercept: $(0, -5)$

C. Horizontal Asymptote: $y = 1$
Vertical Asymptote: $x = -5$
Hole at $x = -2$
x-intercept: $(3, 0)$
y-intercept: $\left(0, -\frac{3}{5}\right)$

D. Horizontal Asymptote: $y = -5$
Vertical Asymptote: $x = 1$
Hole: *none*
x-intercept: $(-2, 0), (-5, 0)$
y-intercept: $(0, -2), (0, 3)$

15. Translate the graph of $f(x) = \frac{6x+7}{x+1}$ one unit down and four units left. Which of the following is the function after the translations?

A. $g(x) = \frac{1}{x-4} - 1$

B. $g(x) = \frac{6}{x-4} - 1$

C. $g(x) = \frac{1}{x-3} + 5$

D. $g(x) = \frac{1}{x+5} + 5$

16. Which statement describes the end behavior of the function $f(x) = \frac{-5x+4}{2x-3}$?

A. as $x \to -\infty, f(x) \to +\frac{3}{2}$ and as $x \to +\infty, f(x) \to -\frac{5}{2}$

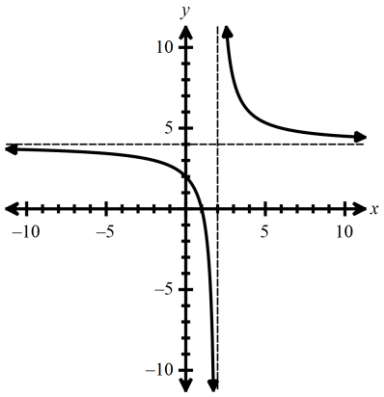
B. as $x \to -\infty, f(x) \to -\infty$ and as $x \to +\infty, f(x) \to +\frac{3}{2}$

C. as $x \to -\infty, f(x) \to -\frac{5}{2}$ and as $x \to +\infty, f(x) \to -\frac{5}{2}$

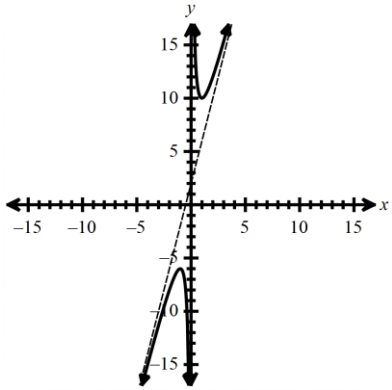
D. as $x \to -\infty, f(x) \to -\infty$ and as $x \to +\infty, f(x) \to -\frac{5}{2}$

17. Which is a graph of $f(x) = \frac{4x+4}{x+2}$ with any asymptotes indicated by dashed lines?

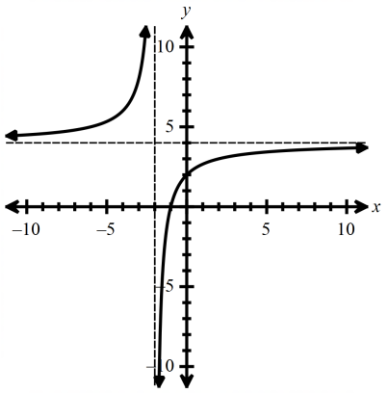
A.



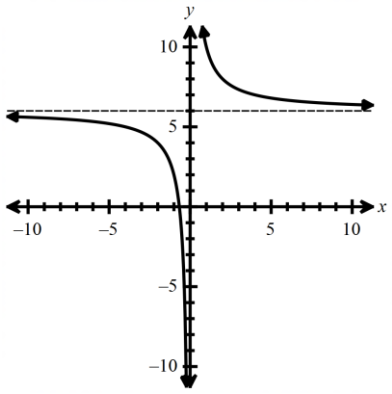
C.



B.



D.



18. After diluting salt water, the concentration of salt in the water is given by the function $f(x) = \frac{3x}{x^2-5}$ where x is the time in hours since the dilution. After how many hours will the concentration of salt in the water be 0.3? Round your answer to the nearest hundredth.

A. 0.18 hours

B. 10.48 hours

C. 11.45 hours

D. 15.00 hours

19. Simplify: $\dfrac{\frac{x^2-9x+14}{x^2-6x+5}}{\frac{x^2-8x+7}{x^2-7x+10}}$

A. $\dfrac{(x-2)^2}{(x-1)^2}$

B. $\dfrac{(x-7)^2}{(x-5)^2}$

C. $\dfrac{(x-5)(x-7)}{2(x-1)}$

D. $\dfrac{(x-7)}{2(x-1)}$

20. Perform the indicated operation: $\dfrac{x+2}{x+5} \cdot \dfrac{\frac{x^2}{x+2}}{\frac{x+1}{x+5}}$

A. $\dfrac{x^2(x+1)}{(x+5)^2}$

B. $\dfrac{(x+2)^2}{x^2(x+1)}$

C. $\dfrac{(x+5)^2}{x^2(x+1)}$

D. $\dfrac{x^2}{x+1}$

21. Perform the indicated operation: $\dfrac{x+4}{x+8} + \dfrac{x-1}{x-3} - \dfrac{5x-6}{x^2+5x-24}$

A. $\dfrac{2x^2+3x+41}{(x+8)^2(x-3)^2}$

B. $\dfrac{10x^2-2x-12}{(x+8)(x-3)}$

C. $\dfrac{2x^2+3x-14}{(x+8)(x-3)}$

D. $\dfrac{-3x+9}{(x+8)(x-3)}$

22. Simplify: $\frac{1}{1-x}+\frac{x}{x-1}$

A. 1

B. $\frac{x+1}{x-1}$

C. $\frac{x+1}{1-x}$

D. $\frac{x+1}{(x-1)^2}$

23. If each of the following expressions is defined, which is equivalent to $x-1$?

A. $\frac{(x+1)(x-1)}{(x-1)}$

B. $\frac{(x-1)(x+2)}{x+1}\cdot\frac{x+1}{x+2}$

C. $\frac{(x+1)(x+2)}{x-2}\div\frac{x+2}{x-2}$

D. $\frac{x+1}{x+2}+\frac{x-1}{x+2}$

24. Perform the indicated operation: $\frac{\frac{x-3}{2}}{\frac{-4}{x+1}+\frac{x}{3}}$

A. $\frac{3x+3}{2(x+4)}$

B. $\frac{x^3-x^2-15x+36}{6(x+1)}$

C. $\frac{3x^2-6x-9}{-8x}$

D. $\frac{3x^2-6x-9}{2(-4+x)}$

25. Solve: $\frac{2}{x^2-4}=\frac{1}{2x-4}$

A. $x=-2$

B. $x=0$

C. $x=2$

D. *no solution*

26. Solve: $\frac{x-1}{x+1}+\frac{x+7}{x-1}=\frac{4}{x^2-1}$

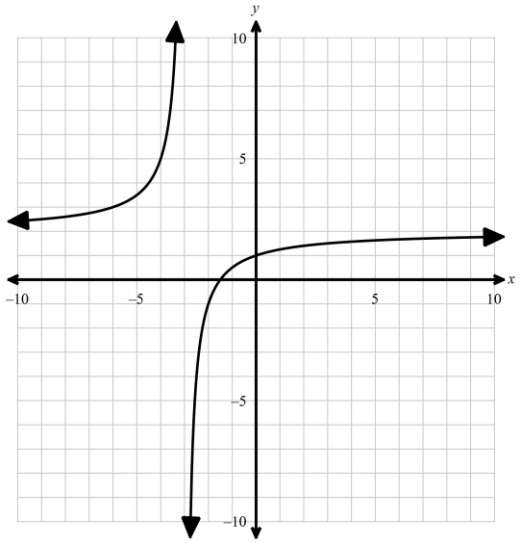
A. $x=-1,-2$

B. $x=-1,1$

C. $x=-2$

D. *no solution*

27. Let $f(x)=\frac{2x+3}{x+3}$ and $g(x)=-3x-7$. Use the graph of $f(x)$ below to help determine the values of x for which $f(x)=g(x)$.



A. $x=-1,5$

B. $x=-2,-4$

C. $x=-3,2$

D. *no solution*

28. A person paddling a canoe on a river takes 6 hours to paddle 4 miles downstream and 4 miles upstream. When the water is still the person can paddle at an average speed of 2 miles per hour. Which of the following statements are true? **Select all that apply.**

F. The equation $\frac{4}{2-r}+\frac{4}{2+r}=6$ can be used to find the average rate of the current (r).

G. The equation $\frac{4}{(r+2)(r-2)}=6$ can be used to find the average rate of the current (r).

H. The equation $\frac{6}{r+2}+\frac{6}{r-2}=4$ can be used to find the average rate of the current (r).

I. The average rate of the current is about 1.15 miles per hour.

J. The average rate of the current is about 2.16 miles per hour.

K. The average rate of the current is about 2.77 miles per hour.

29. 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 $y^{3/2} = (y \cdot y)^{1/3}$.

30. Simplify the expression: $\sqrt[4]{2401x^{28}y^{32}}$

A. $49|x^{49}|y^{64}$

B. $7|x^7|y^8$

C. $49x^{49}|y^{64}|$

D. $7x^7|y^8|$

31. Which of the following statements is 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 $\frac{(-2)^5}{(-3)^3}$.

32. Rewrite the expression in reduced radical form: $\frac{6}{2-\sqrt{7}}$

A. $-6\sqrt{7}$

B. $-\frac{3}{\sqrt{7}}$

C. $-4-2\sqrt{7}$

D. $-\frac{6+3\sqrt{7}}{22}$

33. Which of the following expressions simplifies to $y^2 \cdot \sqrt{y}$?

A. $\frac{\sqrt{y^7}}{\sqrt{y^5}}$

B. $\frac{\left(4x^{3/2}y^{1/4}\right)^2}{(2x^{3/4}y^{-1/2})^4}$

C. $\frac{y^{1/3}y^{3/2}}{y^{1/2}}$

D. $\frac{\sqrt{9x^7y^2}}{3\sqrt{xy}}$

34. Which of the following statements are true for the function $f(x) = -\sqrt{x+3}-6$?
Select all that apply.

F. as $x \to +\infty,\ f(x) \to -\infty$

G. as $x \to +\infty,\ f(x) \to +\infty$

H. $f(x)$ is decreasing

I. $f(x)$ is increasing

J. $Domain$: $\{x|all\ real\ numbers\}$

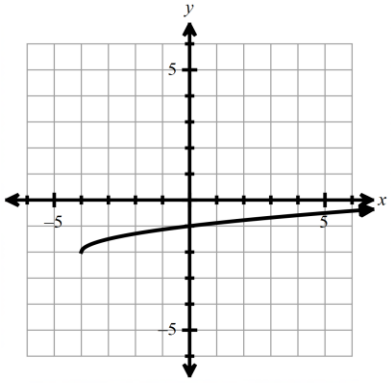
K. $Domain$: $\{x|x \geq -3\}$

L. $Range$: $\{y|all\ real\ numbers\}$

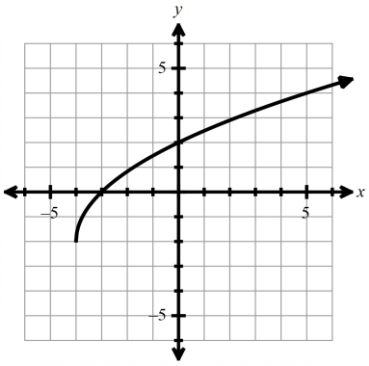
M. $Range$: $\{y|y \leq -6\}$

35. 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?

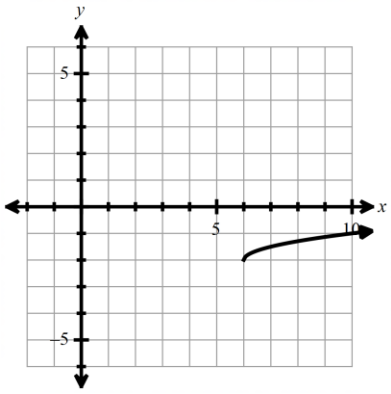
A.



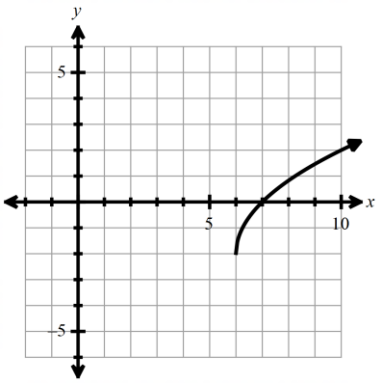
C.



B.



D.



36. 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. $(-27, 0)$

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

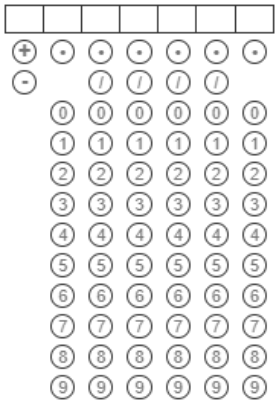
A. $x = 2, x = 9$

B. $x = 4$

C. $x = 9$

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

38. 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 if necessary. Bubble your answer in the grid below.



39. 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

40. Find $f(x) - g(x)$ and $f(x) + g(x)$ for $\begin{cases} f(x) = 6x^2 - x + 5 \\ g(x) = -4x^2 + 2x - 8 \end{cases}$

A. $f(x) - g(x) = 10x^2 - 3x + 13$
$f(x) + g(x) = 2x^2 + x - 3$

B. $f(x) - g(x) = 10x^2 - 3x + 13$
$f(x) + g(x) = 2x^2 + 3x + 13$

C. $f(x) - g(x) = 10x^2 - x - 3$
$f(x) + g(x) = 2x^2 + x - 3$

D. $f(x) - g(x) = 10x^2 - x - 3$
$f(x) + g(x) = 2x^2 + 3x + 13$

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

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

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

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

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

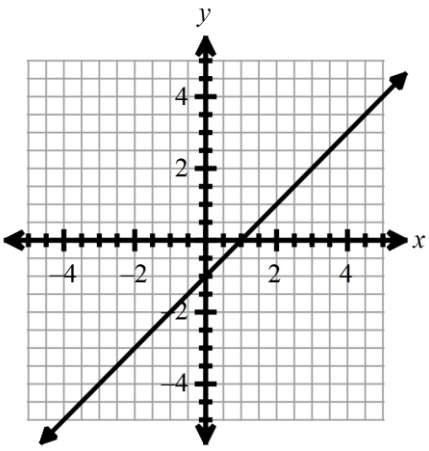
42. Given the graph of $f(x)$ below, what is the value of $f^{-1}(2)$?

A. $f^{-1}(2) = -1$

B. $f^{-1}(2) = 1$

C. $f^{-1}(2) = 2$

D. $f^{-1}(2) = 3$



43. 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 $f(g(x)) = -x$

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 $f(g(x)) = -x$

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

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

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

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

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

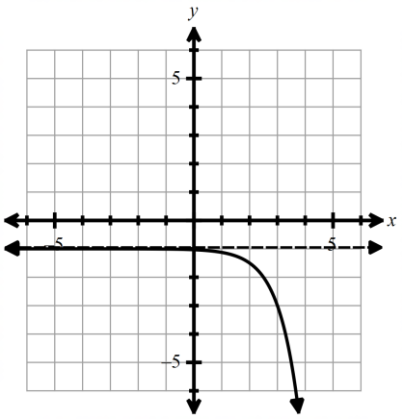
45. Which equation is represented by the graph below?

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



46. Which of the follow statements are true for the function $f(x) = \left(\frac{1}{4}\right)^{x+2} - 1$?
Select all that apply.

F. $Domain: (-2, \infty)$

G. $Range: (-1, \infty)$

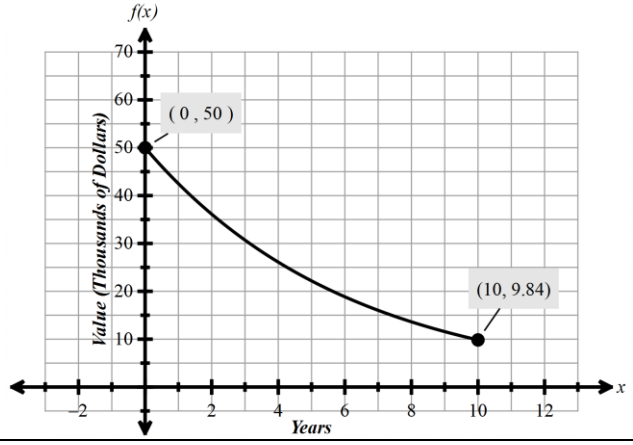
H. $x - intercept: (-2, 0)$

I. $asymptote: y = -2$

J. as $x \to +\infty,\ f(x) \to -1$

K. as $x \to +\infty,\ f(x) \to \infty$

47. 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.

48. The function below shows how $V(t)$, the value in dollars of an investments, depends on t, time in years.

$$V(t) = 1.08^t$$

The equation is rewritten as shown:

$$V(t) = 1.08^t = (1.08^{\frac{1}{12}})^{12t} = (1.0064)^{12t}$$

Which statement best describes the value of the investment in the new equation, $V(t) = (1.0064)^{12t}$?

A. The investment is increasing at a rate of 0.64% per month.

B. The investment is increasing at a rate of 0.0064% per month.

C. The investment is increasing at a rate of 0.64% per year.

D. The investment is increasing at a rate of 0.0064% per year.

49. 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.

50. 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 minimum temperature of the soup approaches 122°F over time.

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

52. Scientists experimenting with the effects of a new antibiotic on a particular bacteria population found that the 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 of 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.

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

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

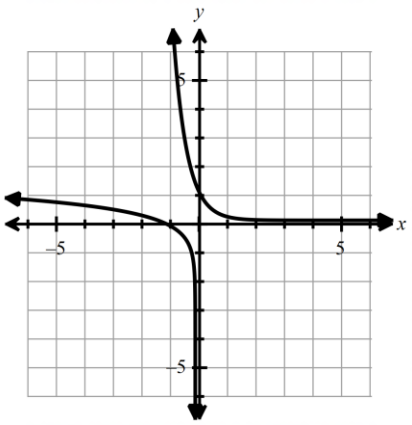
B. $y = \log_3(x) + 7$
$y = 3^{x-7}$

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

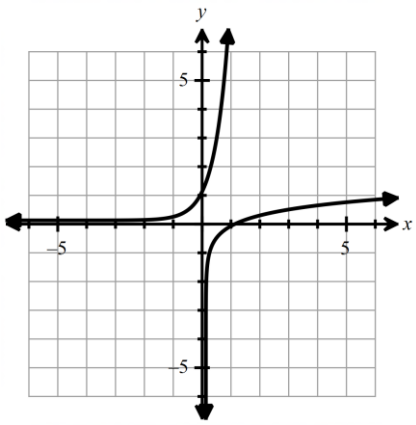
D. $y = 5^{x+2}$
$y = \log_5(x) - 2$

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

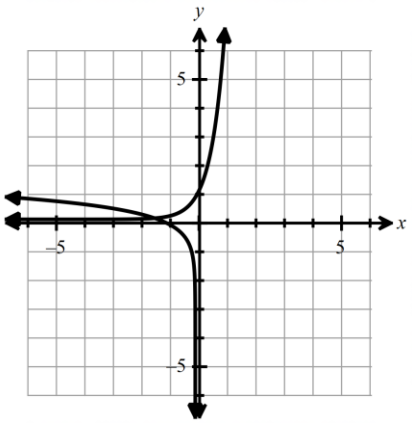
A.



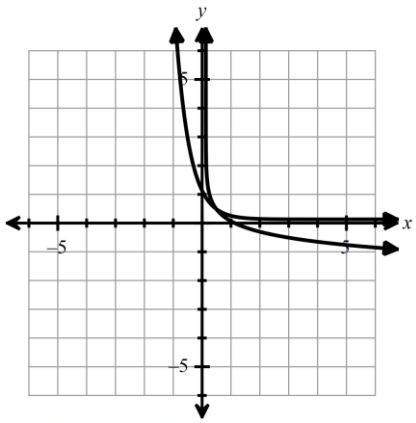
C.



B.



D.



55. 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: $(0, -4)$

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

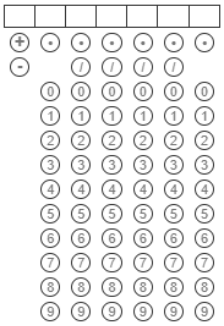
A. $\ln(5) + \frac{1}{3}\ln(a) - 2\ln(b) - \ln(c)$

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

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

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

57. Simplify : $\log_3(81) - \ln(e^7) - \log(10^8) + \log_5(625)$
Round your answer to the nearest hundredth if necessary. Bubble your answer in the grid below.



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

A. $x = 6$

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

C. $x = \log 6$

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

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

A. $x = 8$

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

C. $x = 4$

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

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

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

B. $x = -5$

C. $x = 5$

D. *no solution*

Algebra 2 Honors Semester 2 Instructional Materials 2021-22 Answers

Topic 3 Polynomial Functions			Topic 4 Rational Functions			Topic 5 Rational Exponents & Radical Functions		
#	Ans	Standard	#	Ans	Standard	#	Ans	Standard
1.	15	HSA.APR.B.2	**12.**	8	HSA.CED.A.2	**29.**	C	HSN.RN.A.2
2.	D	HSA.APR.D.6	**13.**	D	HSA.APR.D.6	**30.**	B	HSN.RN.A.2
3.	B	HSA.APR.B.2 HSF.IF.B.4	**14.**	C	HSF.IF.B.3	**31.**	D	HSA.SSE.A.2 HSN.RN.A.2
4.	C	HSA.APR.B.3 HSF.IF.C.7.c	**15.**	D	HSA.APR.D.6	**32.**	C	HSA.SSE.A.2 HSN.RN.A.2
5.	C	HSN.CN.C.7 HSA.APR.B.3	**16.**	C	HSF.IF.C.7d	**33.**	B	HSA.SSE.A.2 HSN.RN.A.2
6.	D	HSF.IF.C.7	**17.**	B	HSF.IF.C.7d	**34.**	F, H, K, M	HSF.IF.B.4
7.	B	HSN.CN.C.8(+) HSN.CN.C.9(+) HSA.APR.B.2 HSA.APR.B.3	**18.**	B	HSA.CED.A.1	**35.**	A	HSF.BF.B.3 HSF.IF.C.7.B
8.	A	HSN.CN.C.8(+) HSN.CN.C.9(+) HSA.APR.B.2 HSA.APR.B.3	**19.**	A	HSA.APR.D7(+) HSA.APR.D.6 HSA.SSE.A.2	**36.**	C	HSF.BF.B.3 HSF.IF.C.7.B
9.	C	HSN.CN.C.9(+)	**20.**	D	HSA.APR.D7(+) HSA.SSE.A.2	**37.**	C	HSA.REI.A.2
10.	D	HSF.BF.B.3	**21.**	C	HSA.APR.D7(+)	**38.**	4.73	HSA.REI.A.2
11.	D	HSF.IF.B.4 HSF.BF.B.3	**22.**	A	HSA.APR.D7(+)	**39.**	C	HSA.REI.A.2
			23.	B	HSA.REI.A.1 HSA.APR.D.7	**40.**	A	HSF.BF.A.1.B
			24.	A	HSA.APR.D7.(+)	**41.**	A	HSF.BF.A.1.C(+)
			25.	D	HSA.REI.A.2	**42.**	D	HSF.BF.B.4C(+)
			26.	C	HSA.REI.A.2	**43.**	D	HSF.BF.B.4A
			27.	B	HSA.REI.D.11	**44.**	A	HSF.BF.B.4D(+)
			28.	F, I	HSA.CED.A.1 HSA.REI.A.2 HSA.APR.D7(+) HSA.APR.D.6			

Algebra 2 Honors Semester 2 Instructional Materials 2021-22 Answers

Topic 6
Exponential & Logarithmic Functions

#	Ans	Standard
45.	B	HSF.IF.C.7e
46.	G, H, J	HSF.IF.B.4 HSF.IF.B.5
47.	B	HSF.IF.B.4 HSF.IF.C.9 HSF.LE.B.5
48.	A	HSF.IF.C.8
49.	A	HSF.IF.C.9 HSF.LE.B.5
50.	B	HSF.LE.A.2
51.	B	HSA.CED.A.2
52.	D	HSF.BF.B.4a HSF.LE.A.4
53.	C	HSF.BF.B.4
54.	C	HSF.IF.C.7e
55.	A	HSF.IF.B.4
56.	A	HSA.SSE.A.2
57.	-7	HSA.SSE.A.2
58.	D	HSF.BF.B.4a HSF.LE.A.4
59.	A	HSF.LE.A.2
60.	C	HSF.LE.A.4