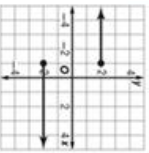


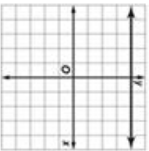
Chapter 2 Midterm Exam Review

1. Find the domain and range of the relation $\{(0, 0), (2, 4), (-4, 0), (4, 0)\}$. Then determine whether the relation is a function.

Determine whether each relation is a function.



3.



Find each value if $f(x) = -3x + 2x^2$ and $g(x) = -4x^2 + 2x - 3$.

4. $f(-2)$

5. $g(4)$

For Questions 6 and 7, state whether each equation or function is linear. If no, explain your reasoning.

6. $f(x) = 100x - 37$

7. $xy - 60 = 0$

8. Write $\frac{2}{3}x - 1 = 8y$ in standard form. Identify A , B , and C .

9. Find the x -intercept and the y -intercept of the graph of $4y - 12 = 3x$.

For Questions 10–12, graph each.

10. $f(x) = \begin{cases} x + 2 & \text{if } x < 0 \\ 2x + 5 & \text{if } 0 \leq x \leq 2 \\ -x + 1 & \text{if } x > 2 \end{cases}$

11. $h(x) = |x + 1|$

12. $f(x) = [x] + 4$

1. _____

2. _____

3. _____

4. _____

5. _____

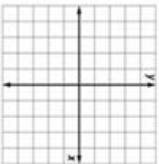
6. _____

7. _____

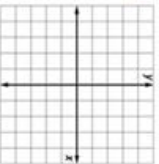
8. _____

9. _____

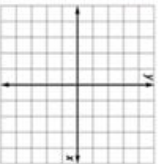
10.



11.



12.



13. Identify the type of function represented by the equation $y = 2|x|$.

14. Find the slope of the line that passes through $(2, 18)$ and $(4, -2)$.

15. What is the slope of a line that is perpendicular to the graph of $y = \frac{1}{2}x^2$?

16. Write an equation in slope-intercept form for the line that has a slope of -1 that passes through $(-4, 3)$.

17. Write an equation in slope-intercept form for the line that passes through $(2, -5)$ and is parallel to the line whose equation is $5x + 2y = 6$.

For Questions 18 and 19, use the set of data in the table.

The table below shows the relationship between the number of phone calls made and the number of tickets sold during a fundraising campaign by 6 callers.

Calls Made (n)	8	9	7	8	6	12
Tickets Sold (t)	16	17	15	15	12	25

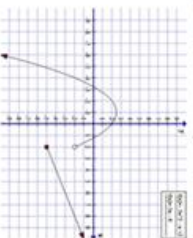
18. Sketch the scatter plot for the data.

19. Use your calculator to find the regression line.

20. Then use your prediction equation to predict the number of tickets sold when 16 calls are made.

21. Then use your prediction equation to predict the number of calls made if 20 tickets are sold.

22. Determine whether the graph represents a *step function*, a *constant function*, an *absolute value function*, or a *piecewise function*.



13. _____

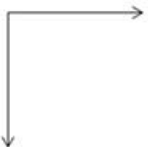
14. _____

15. _____

16. _____

17. _____

18.



19. _____

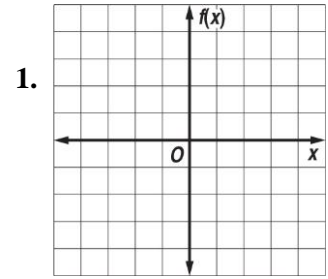
20. _____

21. _____

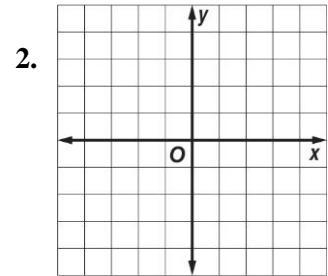
22. _____

Chapter 4 Exam Review

1. Solve by graphing. Complete all parts for $f(x) = x^2 - 4x + 3$.
- Find the y -intercept, the axis of symmetry, and the vertex.
 - Make a table and graph the parabola
 - Determine whether each function has a maximum or a minimum value, and find it
 - Find the roots. If exact roots cannot be found, state the numbers between which the roots are located.



2. Solve by graphing. Complete all parts for $f(x) = x^2 + 2x - 3$.
- Find the y -intercept, the axis of symmetry, and the vertex.
 - Make a table and graph the parabola
 - Determine whether each function has a maximum or a minimum value, and find it
 - Find the roots. If exact roots cannot be found, state the numbers between which the roots are located.



3. Determine whether $f(x) = 5x^2 - 20x + 3$ has a maximum or a minimum value and find that value.

3. _____

4. Solve $3x^2 - x = 4$ by factoring.

4. _____

5. Solve $8x^2 - 64x = 0$ by factoring.

5. _____

6. Solve $x^2 - 6x + 5 = 0$ by factoring.

6. _____

7. Solve $4x^2 - 4x - 3 = 0$ by factoring.

7. _____

8. Solve $4x^2 + 9 = 0$ by using the Square Root Property.

8. _____

9. Solve $9x^2 + 12x + 4 = 6$ by using the Square Root Property.

9. _____

10. Solve $x^2 - 8x + 14 = 0$ by Completing the Square.

10. _____

11. Solve $3x^2 + x - 2 = 0$ by Completing the Square.

11. _____

12. Find the solutions to $2x^2 = 9x - 5$ by using the Quadratic Formula.

12. _____

13. Find the solutions to $x^2 - 6x + 21 = 0$ by using the Quadratic Formula.

13. _____

Chapter 5 Midterm Exam Review

Simplify. Assume that no variable equals 0.

1. $(2c^2d^0)^3(5c^7d^2)$

2. $\frac{12a^2b^4c^5}{48a^6b^3c^3}$

1. _____

2. _____

For Questions 3–5, simplify.

3. $(3f^2 + 5f - 9) + (4f^2 - 7f + 12)$

4. $(5m - 6)(2m + 1)$

3. _____

4. _____

5. $(6g^3 - 2g + 1) - (3g^2 + 5g - 7)$

5. _____

6. Simplify $(11k^2 + 10k^3 - 4k^2)(3k^2 - 2k)$.

6. _____

For Questions 7–8, find the function.

7. Find $p(-4)$ if $p(x) = x^3 - 3x^2 + 7x + 6$.

7. _____

8. Find $p(x + 1)$ if $p(x) = x^2 - 4x + 2$.

8. _____

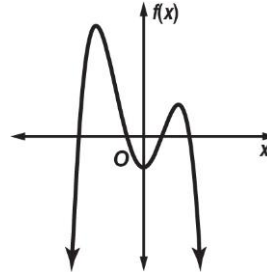
For Questions 9–11, use the graph shown.

9. Describe the end behavior.

10. Determine whether the graph represents an odd-degree or an even-degree polynomial function.

11. Determine whether the graph represents a positive leading coefficient or a negative leading coefficient.

12. State the number of real zeros.



9. _____

10. _____

11. _____

12. _____

Solve the following polynomials by factoring.

13. $5x^3 - 12x^2 + 4x = 0$

14. $x^3 + 5x^2 + 2x + 10 = 0$

13. _____

14. _____

15. $x^4 + 6x^2 + 5 = 0$

16. $x^3 - 8 = 0$

15. _____

16. _____

Use long division or synthetic division to solve the following.

17. $(2x^3 + 3x^2 - 15) \div (2x - 1)$

17. _____

18. $(x^3 + 5x^2 - 32x - 7) \div (x - 4)$

18. _____

Chapter 6 Midterm Exam Review

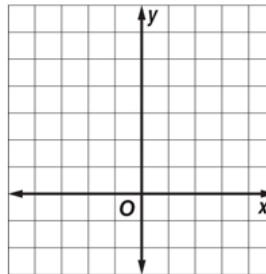
- Find $(f \cdot g)(x)$ for $f(x) = x^2 - 4$ and $g(x) = 6 - x$.
- If $f(x) = 2x - 7$ and $g(x) = x^2 - 5$, find $g[f(5)]$.
- If $f(x) = 3 - x$ and $g(x) = x^2 - 4$, find $[g \circ f](x)$.
- Find the inverse of $g(x) = -2x + 4$.
- Determine whether $f(x) = 4x - 8$ and $g(x) = \frac{1}{4}x + 2$ are inverse functions.

- _____
- _____
- _____
- _____
- _____

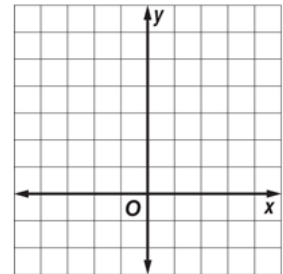
For questions 6-7, graph the inequalities.

- $y < |x + 2| - 1$.
- $y \geq \sqrt{x - 2} + 1$.

6.



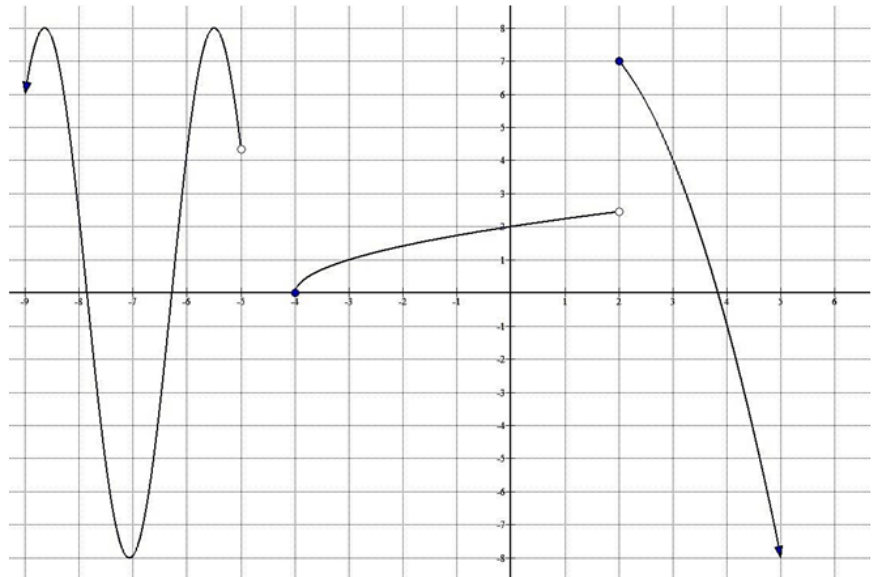
7.



More Exam Review

For Questions 1-4, use the graph.

- Find $f(0)$.
- Find $f(-5)$.
- Find x , such that $f(x) = 4$.
- Find x , such that $f(x) = -8$.



Write the equation of the piecewise function.

- $f(x) =$

