MATH 1314 College Algebra *EXAM* 2 *REVIEW*

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1. Determine whether each relation is a function and find the domain and the range.
2. 
3. 
4. 
5. Given , find:

*a*)  *b*)  *c*)  *d*) 

1. Given 
   1. Graph 
   2. Find 
2. Given  find:

a)  b)  c)  d) 

1. Given  find:

a)  b)  c)  d) 

1. Determine if each function is odd, even, or neither.

*a*)  *b*)  *c*) 

*d)*  *e*) 

1. Let , and  Find the following:

*a*) Domain *f b*) Domain *g c*) Domain *h*

*d*) Domain  *e*) Domain of 

*f*) Domain  *g*) Domain of 

1. Let  and . Find the following:

a)  b)  c)  d) 

1. Let , , and . Find the following functions, and state the domain of each:

*a*)  *b*)  *c*) 

1. Find the difference quotient  for

*a*)  *b*)  *c*)  *d*) 

1. An airplane is flying at an altitude of 3700 *ft*. The slanted distance directly to the airport is *d* feet. Express the horizontal distance *h* as a function of *d*.
2. *a*) How can the graph of  be obtained from the graph ?

*b*) How can the graph of  be obtained from the graph ?

*c*) How can the graph of  be obtained from the graph ?

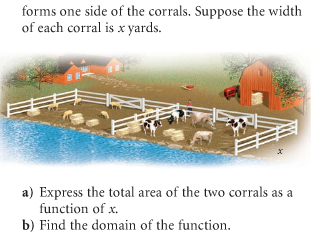
*d*) How can the graph of  be obtained from the graph ?

*e*) How can the graph of  be obtained from the graph ?

1. For , find
2. Find the vertex point
3. Find the line of symmetry
4. State whether there is a maximum or minimum value *and* find that value
5. Find the zeros of 
6. Find the range and the domain of the function.
7. Graph the function and ***label.***
8. On what intervals is the function increasing? Decreasing?
9. For , find
10. Find the vertex point
11. Find the line of symmetry
12. State whether there is a maximum or minimum value *and* find that value
13. Find the zeros of 
14. Find the range and the domain of the function.
15. Graph the function and ***label.***
16. On what intervals is the function increasing? Decreasing?
17. Determine the end behavior of the graph of the polynomial function.
18. 
19. 
20. 
21. 
22. 
23. Find the quotient and the remainder:
24. 
25. 
26. 
27. 
28. Use the Intermediate Value Theorem to determine whether the function has zeros between ***a***and ***b***.
29. 
30. 
31. 
32. 
33. Use synthetic division to find the indicated function value
    * 1. 
      2. 
34. Find all solutions of the equation: 
35. Use the Rational Zero theorem to list all possible rational zero for each of the following:
36. 
37. 
38. 
39. Find the vertical and horizontal asymptotes (if any) of:

|  |  |
| --- | --- |
|  |  |

1. A rancher has 360 *yd.* of fencing with which to enclose two adjacent rectangular corrals, one for sheep and one for cattle. A river forms one side of the corrals. Suppose the width of each corral is *x* yards.



1. Express the total area of the two corrals as a function of *x*.
2. Find the domain of the function.
3. Find the maximum area
4. Find the dimensions that maximize the corrals area
5. A projectile is fired vertically upward, and its height  in feet after *t* seconds is given by the function defined by 
   * + 1. From what height was the projectile fired?
       2. After how many seconds will it reach its maximum height?
       3. What is the maximum height it will reach?
6. A ball is thrown upwards, and its height *s* at time *t* can be determined by the function , where *s* is measured in feet above the ground and *t* is the number of seconds of flight. Find:

*a*) The time it takes the ball to reach its maximum height.

*b*) The maximum height the ball attains.

***SOLUTION***

1. *a*) 

*b*) 

*c*) 

1. *a*) 6 *b*)  *c*) 0 *d*) 
2. *a*)



*b*) 

1. *a*) -1 *b*) 0 *c)* 1 *d*) 2
2. *a*)  *b*)  *c*)  *d*) 
3. *a*) even *b*) even *c*) odd *d*) neither *e*) neither
4. *a*)  *b*)  *c*)  *d*) 

*e*)  *f*)  *g)* 

1. *a*) 95 *b*) 127 *c*)  *d)* 
2. *a*) ; 

*b*) ; 

*c*) ; 

1. *a*) 4 *b*) −4 *c*)  *d*) 
2. 
3. *a*) Reflected across *x-*axis (or upside-down) and shifted right 8 units.

*b*) Shifted left 6 units and down 5 units.

*c*) Shifted left 7 units and up 2 units.

*d*) Reflected across *x-*axis (or upside-down) and shifted right 3 units and up 4 units.

*e*) Reflected across *y-*axis, shifted left 6 units and down 5 units.

1. Vertex:  







Vertex point: 

Axis of symmetry: 

Maximum point @ 

*x*-intercept: 

*y*-intercept: 

Domain: 

Range: 

Increasing: 

Decreasing: 

1. Vertex: 



Vertex point: 

Axis of symmetry: 

Maximum point @ 

*x*-intercept: 

*y*-intercept: 

Domain: 

Range: 

Increasing: 

Decreasing: 

1. *a*) Leading Term: ; rises left and right

*b*) Leading Term: ; rises left and right

*c*) Leading Term: ; rises left and falls right

*d*) Leading Term: ; fall left and rises right

*e*) Leading Term: ; falls left and right

1. *a*) 

*b*) 

*c*) 

*d*) 

1. *a*) Can’t be determined

*b*) Yes

*c*) Yes

*d*) Can’t be determined

1.  
2. 
3. *a*) 

*b*) 

*c) *

1. *a*) 

*b*) 

*c*) 

*d*) 

1. *a*)  *b*) Domain: 0 < *x* < 120 *c*)  *d*) 60 by 180 yd.
2. *a*) Height = 600 *ft*. (*t* = 0) *b*) *t* = 25 sec. *c*) Max. Height: 10,600 ft.
3. *a*) *t* = 1.5 secs *b*) Max height is 44 feet.