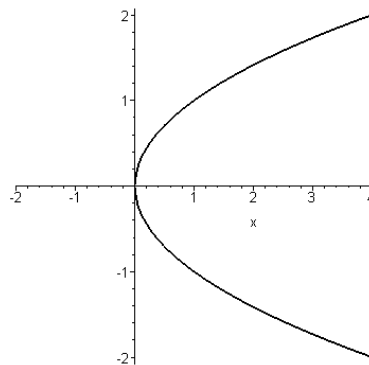
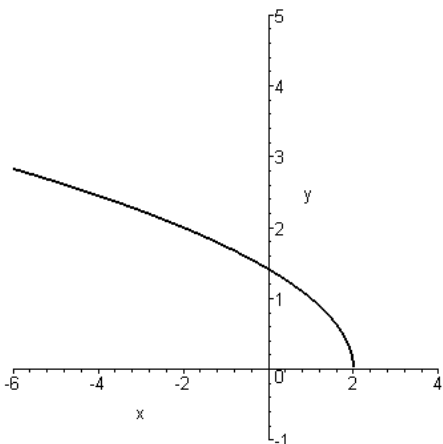


Intermediate Algebra questions for placement test practice

1. Simplify: (write answers using only positive exponents) $(3x^{3/4})\left(\frac{1}{2}x^{1/3}\right)$
2. Use rational exponents to simplify: $(\sqrt[3]{a^2b^5})^{12}$
3. Simplify: $\sqrt{36x^4y}$
4. Simplify: $\sqrt{\frac{7a}{6}}$
5. Simplify: $(2+\sqrt{5})(4-\sqrt{5})$
6. Simplify: $\frac{3}{4-\sqrt{7}}$
7. Find the distance between $(-3, 7)$ and $(2, 11)$: (give an exact answer)
8. Given $f(x) = 3x^2 - 2x + 1$, find $f(-1)$:
9. Given $g(x) = \frac{x}{4-x}$, find $g(4)$:
10. Find the domain of the function algebraically: (express in interval notation)
$$g(z) = \frac{7}{z^2 - 16}$$
11. Determine whether the graph is a function:



12. Determine the domain and range of this function: (use interval notation)



13. Graph this equation:

$$y = -(x+2)^3$$

14. Find $f(2)$ given this piecewise function: $f(x) = \begin{cases} 3x, & \text{for } x < 2 \\ \frac{1}{2}x + 6 & \text{for } x \geq 2 \end{cases}$

15. Solve by factoring:

$$4x^2 + 17x = -15$$

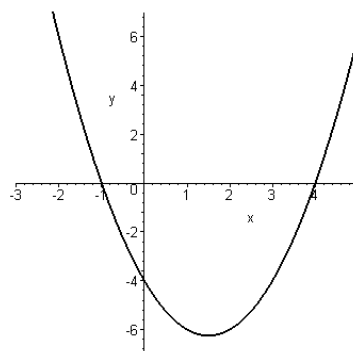
16. Solve by completing the square: (obtain exact solutions)

$$x^2 - 8x + 9 = 0$$

17. Solve by the quadratic formula to find exact solutions:

$$2x^2 - 5x - 3 = 0$$

18. Find the zeros of the graphed function:



19. Solve the equation of quadratic form:

$$x^4 + 36 - 13x^2 = 0$$

20. Sketch the quadratic function by algebraically finding the axis of symmetry, vertex, and use a total of at least five points:

$$f(x) = x^2 + 4x + 3$$

21. The width of a rectangle is 5 ft less than the length. The area of a rectangle is 176 square feet. Find the perimeter of the rectangle:

22. Solve each rational equation and check for extraneous solutions:

$$\frac{x}{x-2} + \frac{1}{x-4} = \frac{2}{x^2 - 6x + 8}$$

23. Solve the equation and check for extraneous solutions: $\sqrt{x-1} + 3 = x$

24. Given the function value of an acute angle θ , find the other five trigonometric function values in exact form:

$$\cos(\theta) = \frac{7}{25}$$

25. Given $(3, -7)$ which lies on the terminal side of θ , find all six trigonometric function values in exact form:

26. Find the exact acute angle θ for the given function value. $\cos(\theta) = \frac{\sqrt{3}}{2}$

27. Find the reference angle and exact function value: $\tan(300^\circ)$

28. Solve the system of linear equations graphically:
 $3x + y = 7$
 $x + y = 1$

29. Solve the system of linear equations algebraically:
 $x + y = 9$
 $2x - 3y = -2$

30. Solve the system of linear equations algebraically:
 $x + 2y - z = 5$
 $2x - 4y + z = 0$
 $3x + 2y + 2z = 3$

Answers to Intermediate Algebra questions for placement test practice

1. $\frac{3}{2}x^{13/12}$

2. a^8b^{20}

3. $6x^2\sqrt{y}$

4. $\frac{\sqrt{42a}}{6}$

5. $3+2\sqrt{5}$

6. $\frac{4+\sqrt{7}}{3}$

7. $\sqrt{41}$

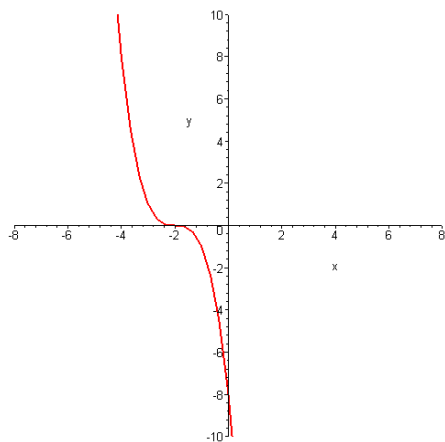
8. $f(-1) = 6$

9. $g(4)$ is undefined

10. $(-\infty, -4) \cup (-4, 4) \cup (4, \infty)$

11. y is not a function of x 12. Domain: $(-\infty, 2]$ Range: $[0, \infty)$

13.



14. $f(2) = 7$

15. $x = -3, x = -\frac{5}{4}$

16. $x = 4 \pm \sqrt{7}$

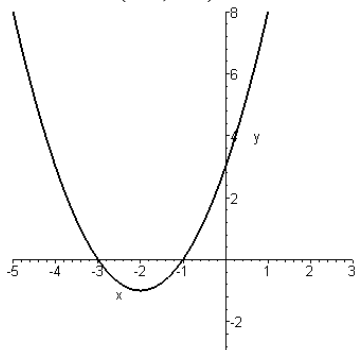
17. $x = -\frac{1}{2}, x = 3$

18. $x = -1, x = 4$

19. $-3, 3, -2, 2$

20. Axis of symmetry: $x = -2$

Vertex: $(-2, -1)$



21. $l = 16 \text{ ft}$ and $w = 11 \text{ ft}$, Perimeter = 54 ft

22. $x = -1$ ($x = 4$ is an extraneous root)

23. $x = 5$ ($x = 2$ is an extraneous root)

24. $\sin(\theta) = \frac{24}{25}$, $\tan(\theta) = \frac{24}{7}$, $\csc(\theta) = \frac{25}{24}$, $\sec(\theta) = \frac{25}{7}$, $\cot(\theta) = \frac{7}{24}$

25. $\sin(\theta) = -\frac{7\sqrt{58}}{58}$, $\cos(\theta) = \frac{3\sqrt{58}}{58}$, $\tan(\theta) = -\frac{7}{3}$,

$\csc(\theta) = -\frac{\sqrt{58}}{7}$, $\sec(\theta) = \frac{\sqrt{58}}{3}$, $\cot(\theta) = -\frac{3}{7}$

26. 30°

27. $60^\circ, -\sqrt{3}$

28. $(3, -2)$

29. $(5, 4)$

30. $(2, \frac{1}{2}, -2)$