The Advanced Algebra and Functions (AAF) test assesses the following knowledge and skills:

- **Linear Equations**
- **Linear Applications and Graphs**
- **Factoring**
- **Quadratics**
- **Functions**
- **Radical and Rational Equations**
- **Polynomial Equations**
- **Exponential and Logarithmic Equations**
- **Trigonometry**

These are the topics that you should know before you take the AAF test.

Here are 12 practice problems that you can try on your own, to make sure you're comfortable with these topics. The answers are on the last page.

If you'd like help with any specific problem, you can watch that problem's short video that explains in detail how to solve it.

You can also take a practice test, which can be downloaded from the Academic Achievement Center's website. If you would like some help answering the questions on the practice test, you can make an appointment to meet with a math Learning Specialist. Contact the Academic Achievement Center's front desk staff at either aac@massbay.edu or 781-239-2620.

1) You need a ladder that will reach the top of a 25-foot house when it is placed 10 feet away from the house. How long does the ladder need to be?

A) 25 feet
B) 26 feet
C) 27 feet
D) 28 feet

2) An equation of the line that contains the origin and the point (1,2) is:

A) y = 2x + 1
B) 2y = x
C) y = x - 1
D) y = 2x

3) If $f(x) = \square\square\square_2(\square)$, for what value of x does f(x) = 5?

A) 5
B) 10
C) 25
D) 32

4) Joe invests $6000 in a bank account which pays 8% annual interest, compounded yearly. How much money will be in Joe's account at the end of the third year?

A) $7558.27
B) $6480.00
C) $7440.00
D) $7018.36

5) Find all of the solutions to this polynomial equation: $3x^3 + 9x^2 - 30x = 0$

A) x = -5, 0, 2
B) x = -5, 2
C) x = -2, 0, 5
D) x = 2, 5

6) If $f(x) = -x^2 + 1$, then $f(x + 1)$ =

A) $-x^2 + 1$
B) $-x^2 - 2x$
C) $-x^2$
D) $-x^2 - 2x + 2$

7) Simplify: $\frac{1}{x} + \frac{5}{x+3}$

A) $\frac{6}{2x+3}$

B) $\frac{6x+3}{x(x+3)}$

C) $\frac{9}{x+3}$

D) $\frac{5x^2+3}{x(x+3)}$

8) If the length of a rectangle measures (x+1) feet and the width measures (2x-1) feet, what is the value of x if the area of the rectangle is 35 square feet?

A) 7
B) 6
C) 5
D) 4

9) Simplify the expression: cos θ tan θ

A) sin θ
B) csc θ
C) cot θ
D) sec θ

10) Solve this radical equation: $-8\sqrt{x+6}-7=-79$

A) 9
B) 75
C) 3
D) There is no real solution

11) Solve this rational equation: $\frac{1}{6y}+\frac{5}{2y}=-5$

A) $\frac{-4}{15}$

B) $\frac{8}{3}$

C) $\frac{-8}{15}$

D) $\frac{-3}{20}$

12) Solve this exponential equation: $3^{3x+6}=27$

A) 9
B) 3
C) 1
D) -1

SOLUTIONS

1) C
2) D
3) D
4) A
5) A
6) B
7) B
8) D
9) A
10) B
11) C
12) D