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# About the Placement Test

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Dear Student,

Thank you for choosing to pursue your academic, professional, and personal goals here at North Hennepin Community College (NHCC). This packet contains sample questions intended to help the student review for the Arithmetic, Advanced Algebra, and Calculus math tests.

The sample questions in this packet are intended to be one of several resources available to aid the student's review of mathematical content. Students are encouraged to take advantage of other resources to aid review, including the websites that are listed within this packet.

We wish you success in all your endeavors here at North Hennepin Community College!

Best wishes,

Testing Center Staff

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## Placement

Course placement in Math courses will be at either developmental or college-level. Courses numbered 1000 or below are developmental courses designed to prepare students for success in college-level courses. Developmental credits do not apply toward a certificate, diploma, or degree. Courses numbered 1000 or above are considered college-level that meet college-level standards. College credits apply toward the requirements of a certificate, diploma, or degree.

## Guidelines

Students must register for courses according to their placement or for a lower course, but not for a higher course. Students may retest only once a semester for a \$10 fee. Otherwise, student must complete each course with a "C" or better before moving to the next level.

Placement test results will be available immediately upon completing the test. The Testing Advisor will explain the test results, course placement, and the next steps in the enrollment process. Students must complete **Online Orientation** before they can register for a **Registration Session**. Course registration will be available after meeting with an advisor in a Registration Session. PSEO and International students will not be able to access this until fully accepted.

## Course Placement Evaluation

You may be eligible for a course placement based on ACT, SAT or MCA test scores, previously completed college cr

## General Test & Review Information

### How to take the placement test

- $\frac{3}{4}$  Apply to the college – [www.nhcc.edu/admissions](http://www.nhcc.edu/admissions) or in person at the Student Info Desk
- $\frac{3}{4}$  Schedule a placement testing appointment in Registerblast: [www.registerblast.com/nhcc/](http://www.registerblast.com/nhcc/)  
Monday 9:00 or 1:00, Tuesday 3:00, Wednesday 3:00. Thursday 9:00 or 1:00.
- $\frac{3}{4}$  Review! Use this study packet and other recommended resources listed below.
- $\frac{3}{4}$  Students may retest only once a semester for a \$10 fee.
- $\frac{3}{4}$  Show up! Bring photo identification (passport, state ID, driver's license) to your appointment, students cannot test without identification. Arrive 15 minutes early to check-in for testing. The test is not timed. It will take approximately 60 minutes to complete.
- $\frac{3}{4}$  Bring ACT or SAT scores to determine waiver eligibility. An ACT Math subscore of 22 or higher, or a SAT Math subscore of 530 or higher will place you into College Algebra.

# Math Placement Test

## Structure

The math placement test is designed to measure student's understanding of content areas in Arithmetic, Algebra, Geometry, Functions and Trigonometry. The test begins with the ACCUPLACER Next Generation Advanced Algebra and Functions test, which has 20 questions, and will either place students into a College Math class based on that score, or require additional tests for placement. An Advanced Algebra and Functions score of less than 235, will start the Developmental Math test with 18 questions. An Advanced Algebra and Functions score of more than 261, will start the Calculus Readiness test with 10 questions. Test scores and placement are available immediately after completing the test. The Testing Advisor will explain test results and course placements to each student.

## Guidelines

The placement test is not timed. Students are **not permitted** to use a personal calculator, a calculator tool on the computer or the Internet. The ACCUPLACER calculator is the only calculator students may use, and it only appears on certain questions.

A calculator button will be displayed right next to the Accessibility button on the toolbar.

The sample questions in this packet are not intended to be exhaustive,



9.

**15. Simplify:  $3 \pm 1.75$**

- a. 4.75
- b. 1.75
- c. 1.25
- d. 1.72
- e. 0.75

**16. Simplify:  $5.8 + 3.55$**

- a. 9.35
- b. 4.13
- c. 1.25
- d. 8.35
- e. 11.15

**17. Simplify:  $2 + 2 \times 4 \pm 3$**

- a. 13
- b. 4
- c. 9
- d. 7
- e. 15

**18. Simplify:  $24 \div 2 \times 6 \pm 4$**

- a. -2
- b. 24
- c. 6
- d. -18
- e. 68

**19. Simplify:  $7 \pm (2 + 9)$**

- a. 14
- b. -4
- c. 18
- d. 4
- e. -14

**20. Simplify:  $7 \pm 8(3 \pm 5) + 15$**

- a. 38
- b. 17
- c. 6
- d. 4
- e. -14

**21. Evaluate the expression  $\frac{1}{3}$   
when  $a = 5$  and  $b = 6$  and simplify**

- a. 10
- b. 20
- c. 1
- d.  $\frac{11}{3}$
- e. 80

**22. Evaluate the expression  $\frac{1}{2} ( \quad )$   
when  $h = 7$ ,  $B = 3$ ,  $b = 5$  and simplify**

- a. 14
- b. 20
- c. 28
- d.  $11\frac{1}{2}$
- e. 80



23. Evaluate the expression  $(a + b)^2$   
when  $a = 5$  and  $b = 3$  and simplify

- a. 34
- b. 64
- c. 225
- d. 16
- e. 45

24. Evaluate  $\frac{b \sqrt{b^2 - 4ac}}{2a}$

**31. Solve:  $2(a + 5) = -4(a - 4)$**

- a.  $a = 4$
- b.  $a = 1$
- c.  $a = 2$
- d.  $a = \frac{1}{3}$
- e.  $a = -1$

**32. Solve:  $4 - 3(x + 8) = 2(x + 5)$**

- a.  $x = 6$
- b.  $x = 2$
- c.  $x = -6$
- d.  $x = -2$
- e.  $x = \frac{18}{5}$

**33. Solve:  $2x - 1 = 5x + 8$**

- a.  $x = 3$
- b.  $x = -2$
- c.  $x = 1$
- d.  $x = \frac{1}{3}$
- e.  $x = -3$

**34. Solve:  $-2(w - 1) = 8 - 3(w + 2)$**

- a.  $w = 4$
- b.  $w = -4$
- c.  $w = \frac{12}{5}$
- d.  $w = 0$
- e.  $w = -2$



# Advanced Algebra and Functions Sample Questions

Choose the best answer. If necessary, use the paper you were given.

- Function  $g$  is defined by  $g(x) = 3(x + 8)$ . What is the value of  $g(12)$ ?
  - 4
  - 20
  - 44
  - 60
  
- Which of the following is an equation of the line that passes through the point  $(0, 0)$  and is perpendicular to the line shown above?
  - $y = \frac{5}{4}x$
  - $y = \frac{5}{4}x + 3$
  - $y = -\frac{4}{5}x$
  - $y = -\frac{4}{5}x + 3$
  
- The surface area of a right rectangular prism can be found by finding the sum of the area of each of the faces of the prism. What is the surface area of a right rectangular prism with length 4 centimeters (cm), width 9 cm, and height 3 cm? (Area of a rectangle is equal to length times width.)
  - $75 \text{ cm}^2$
  - $108 \text{ cm}^2$
  - $120 \text{ cm}^2$
  - $150 \text{ cm}^2$
  
- Which of the following expressions is equivalent to  $(x + 7)(x^2 - 3x + 2)$ ?
  - F1 7.92 Tf 1 0 0 1 384.38 170.71 Tm 0.137 0.122 0.125 rg 0.137 0.122 0.A.

5. The graph below shows the cost, in dollars, of apples as a function of the number of pounds

7. Which of the following expressions is equivalent to  $3x^2 + 6x - 24$ ?
- A.  $3(x + 2)(x - 4)$
  - B.  $3(x - 2)(x + 4)$
  - C.  $(x + 6)(x - 12)$
  - D.  $(x - 6)(x + 12)$
8. A biologist puts an initial population of 500 bacteria into a growth plate. The population is expected to double every 4 hours. Which of the following equations gives the expected number of bacteria after  $t$  hours?







19. If  $x > 0$  and  $y > 0$ , which of the following expressions is equivalent to  $\frac{x^2 - y^2}{x^2 + y^2}$ ?





**10.**

**14. Choice D is correct.** Subtracting 9 from both sides of the equation yields  $5x + 1 = -6$ , and

**18. Choice B is correct.** By definition, if  $(b)^x = y$ , where  $b > 0$  and  $b$

# Calculus Readiness Practice Test

Calculators not allowed

1. If  $x^3 - 2x^2 = 2$ , then  $x =$
- a) -2
  - b) 14
  - c) -16
  - d) -18
  - e) None of these
2. If  $x^2 - 7x + 4 = 1$ , then  $x =$
- a) 5
  - b) -13
  - c) -9
  - d) -5
  - e) None of these
3. If  $x^2 = 3$  and  $\frac{1}{x} = 2$ , then  $x =$
- a) 7
  - b)  $\frac{3}{4}$
  - c)  $\frac{4}{3}$
  - d)  $\frac{5}{4}$
  - e)  $\frac{7}{6}$







10. If  $\log_2 2.1 = 2.1$  and  $\log_2 1.5 = 1.5$ , then  $\log_2 \frac{2}{3}$
- a) can't be determined from the given information
  - b) 0.6
  - c) 2.6
  - d) 1.6
  - e) 3.6

11. If  $\log_2 3 = 5$  and  $\log_2 3 = 3$ , then
- a)  $\frac{8}{3}$
  - b)  $\frac{2}{3}$
  - c)  $\frac{1}{3}$
  - d)  $\frac{14}{3}$
  - e)  $\frac{13}{3}$

12. If  $\log_3 2 = 1$  and  $\log_3 2 = 2$ , then =
- a) 5
  - b)  $\frac{3}{2}$



16. What is the value of  $\sin^2 2 + \cos^2 2$  ?

- a) 4
- b) 0
- c) 1
- d)  $\frac{\sqrt{2}}{2}$
- e) None of these

17. If  $\sin \theta = \frac{1}{2}$  with  $0 < \theta < \frac{\pi}{2}$ , then  $\cos 2\theta =$

- a)  $\frac{\sqrt{3}}{2}$
- b) 0
- c)  $\frac{1}{2}$
- d) 1
- e) None of these

18. If  $\sin \theta = \frac{\sqrt{2}}{2}$  with  $0 < \theta < \frac{\pi}{2}$ , what is the value of  $\tan \theta$  ?

- a)  $\sqrt{3}$
- b)  $\frac{1}{\sqrt{3}}$
- c) 1
- d)  $\frac{2}{\sqrt{2}}$
- e) None of these

