

COMPASS MATH PLACEMENT STUDY GUIDE

Many incoming OU Freshmen must take the COMPASS test. The purpose of the test is to place you in the most appropriate math course. The following practice test items are representative of the College Algebra and Trigonometry portions of the COMPASS test. Pre-algebra and Algebra test items may also appear on the student's test; an algebra book would be a suitable source for practice for equations and formulas covered in the Pre-algebra and Algebra portions of the COMPASS:

- Factoring
- Elementary set theory
- Simplifying, adding, subtracting, multiplying and dividing
- Polynomials & rational expressions
- Linear equations & inequalities in one variable
- Linear equations & inequalities in two variables: solving & graphing
- Graphing equations
- Quadratic equations & inequalities
- Irrational numbers
- Solving systems of 2 or 3 linear equations
- Matrices
- Functions: trigonometric, exponential & logarithmic
- Basic coordinate geometry (equations of straight lines, parabolas, etc.)

The following are some sample test items which will give you an idea of the subjects on the COMPASS test and the types of questions you will be required to answer, except for Pre-algebra and Algebra test items--refer to an algebra textbook for such items.

1. The sum of $\frac{2}{x+1}$ and $\frac{3}{x^2-1}$ (where the expressions are defined) expressed as a single fraction is:

a. $\frac{2}{x+1}$

d. $\frac{2x+1}{(x+1)(x-1)}$

b. $\frac{5}{x-1}$

e. $\frac{2}{x-1}$

c. $\frac{5}{(x+1)(x-1)}$

2. Which expression below is a factor of $b^3 - 10b^2 + 24b$?

a. $b - 2$

d. $b + 12$

b. $b - 4$

e. At least two of the above

c. $b + 6$

3. The equation $3x^2 + 2x + 4 = 0$ will have

- a. one real solution
 - b. two real solutions
 - c. one complex solution
 - d. two complex solutions
 - e. no solution
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4. A line $hy = kx + 2$ is drawn perpendicular to the x -axis and goes through the point $(-2, 0)$. In order for this to be true, the values of h and k must be:

- a. $h = -1$ and $k = 0$
 - b. $h = 1$ and $k = 0$
 - c. $h = 0$ and $k = -1$
 - d. $h = 0$ and $k = 1$
 - e. None of the above
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5. A concrete mixer requires 2 parts of gravel, 3 parts of cement, and 4 parts of sand by weight in making concrete. How many pounds of cement are required for $4\frac{1}{2}$ tons of this mixture? [1 ton = 2,000 pounds]

- a. 1,000
 - b. 2,000
 - c. 3,000
 - d. 4,000
 - e. None of the above
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6. Which of the following should you use to solve $|2x + 3| > 5$?

- a. $-5 > 2x + 3 > 5$
 - a. $2x + 3 > 5$ or $2x - 3 < -5$
 - b. $2x + 3 > 5$ and $2x + 3 < -5$
 - d. $2x + 3 = 5$
 - e. None of the above
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7. An equation of the line determined by the points $(3, 0)$ and $(0, 2)$ is:

- a. $y = \frac{2}{3}x + 2$
- b. $y = -\frac{2}{3}x + 2$
- c. $y = \frac{2}{3}x + 3$
- d. $y = -\frac{2}{3}x + 3$
- e. None of the above

8. Given $f(x) = x^3$ and $g(x) = f(x - 2) + 1$, how must the graph of f be shifted to get the graph of g ?

- a. Not at all
b. Down 2 and to the right 1
c. Up 1 and to the right 2
d. Cannot tell
e. None of the above
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9. If $f(x) = x^2 + 1$ and $g(x) = x + 2$, then $(f \circ g)(x)$ equals

- a. $x^2 + 4x + 5$
b. $x^2 + 3$
c. $x^2 + 5$
d. Cannot tell
e. None of the above
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10. The exact value of $\sec \frac{\pi}{3}$ is:

- a. $\frac{\sqrt{3}}{2}$
b. $\frac{2}{\sqrt{3}}$
c. 2
d. $\frac{1}{\sqrt{3}}$
e. None of the above