

SAMPLE PLACEMENT TEST QUESTIONS

(Pen & Paper Version)

The Mathematics Department Placement Test has four parts with 17 questions in each part:

Part I - FUNDAMENTALS OF MATHEMATICS Part II - ELEMENTARY ALGEBRA
Part III - INTERMEDIATE ALGEBRA Part IV - TRIGONOMETRY

NOTE: This test is not the computerized placement test available through Advising and Counseling.

The following sample questions are similar to those on the Mathematics Department Placement Test. Review only the material for those courses listed above that you have previously studied.

When you take the Mathematics Department Placement Test, a mathematics instructor will discuss the results with you, and will assist you in preparing a plan of study.

SAMPLE QUESTIONS

PART I – FUNDAMENTALS OF MATHEMATICS

READ EACH QUESTION VERY CAREFULLY. FOR SOME OF THESE QUESTIONS YOUR CALCULATOR MAY NOT BE VERY USEFUL.

1. In subtracting $7\frac{1}{5}$ we would borrow a 1 from the 7

$$\begin{array}{r} 7\frac{1}{5} \\ -3\frac{2}{3} \\ \hline \end{array}$$

in $7\frac{1}{5}$ and write: $7\frac{1}{5} = 6\frac{?}{15}$ What number would the

$$\begin{array}{r} 6\frac{?}{15} \\ -3\frac{2}{3} = -3\frac{10}{15} \\ \hline \end{array}$$

(?) represent?

2. In dividing $326\overline{)50,227}$ express your answer as a whole number with a whole number remainder (not a decimal). NOTE: Your answer must include the remainder in either fractional or whole number form.

3. In adding $\frac{1}{8} + \frac{5}{12} + \frac{4}{9}$, what is the least common denominator?

4. In multiplying $5\frac{1}{3} \times 1\frac{3}{7}$ and without using a common denominator, what number must we multiply 16 by to arrive at the numerator of the final correct answer?

5. Subtract: $5\frac{1}{5} - 3\frac{2}{3}$

6. Divide: $2\frac{1}{3} \div \frac{1}{2}$

7. Add: $38 + 3.8 + .38$

8. 2.3 is what *percent* of 7?
Round your answer to the nearest *tenth* percent.

9. The ratio of men to women in a community college is 4 to 5. How many *women* attend if there are 7600 men?

PART II - ELEMENTARY ALGEBRA

10. Perform the indicated operations: $-2(5 - 7) - 6$

12. Solve: $3 - 2(x + 4) = x$

11. Express as a *single* fraction in simplest form:

$$\frac{x}{2} - \frac{2x + 2y}{4y}$$

13. Solve: $5 - \frac{3x}{4} = 2x$

14. Solve for F: $C = \frac{5}{9}(F - 32)$

PART III - INTERMEDIATE ALGEBRA

15. Rationalize the denominator and simplify:

$$\frac{\sqrt{8+3\sqrt{2}}}{5\sqrt{3}}$$

16. Express in simplest form *without* negative exponents:

$$\left(\frac{x^3 \cdot y^2}{xy}\right)^{-1}$$

17. Solve this system of equations: $2x - y = 4$
 $3x - 2y = 1$

18. Solve: $3\sqrt{x} - x = 2$

19. Given the coordinates of the two points $P_1(1,2)$, $P_2(-2,3)$, determine the *slope*.

PART IV - TRIGONOMETRY

20. Graph the sine and cosine functions on the same axes. Then determine the interval(s) below for which $\sin 2 > \cos 2$:

(OE # $2 < 90^\circ$, $90^\circ < 180^\circ$,
 $180^\circ < 270^\circ$, $270^\circ < 360^\circ$).

21. Solve for all values of θ such that $0 < \theta < 360^\circ$:

$$2 \sin^2 \theta - \sin \theta = 0$$

22. Given that $\cos \theta = \frac{\sqrt{2}}{2}$, determine the values of θ between 270° and 450° .

23. Express as a *single* trigonometric function in simplest

$$\text{form: } \frac{\csc \theta}{\cot \theta}$$

24. Given that $\tan \theta = -\frac{2}{3}$ and θ is in Quadrant II, determine the value of $\sec \theta$.

ANSWERS

1. 18

2. $154 \frac{23}{326}$

3. 72

4. 10

5. $1 \frac{8}{15}$

6. $4 \frac{2}{3}$

7. 42.18

8. 32.9%

9. 9500 women

10. -2

11. $\frac{xy - x - y}{2y}$

12. $x = -\frac{5}{3}$

13. $x = \frac{20}{11}$ or $1 \frac{9}{11}$

14. $F = \frac{9}{5}C + 32$ or $\frac{9C + 160}{5}$

15. $\frac{\sqrt{6}}{3}$

16. $\frac{1}{x^2 y}$

17. (7,10)

18. 1, 4

19. $-\frac{1}{3}$

20. $90^\circ < \theta < 180^\circ$

21. $30^\circ, 150^\circ, 210^\circ, 330^\circ$

22. $315^\circ, 405^\circ$

23. $\sec \theta$

24. $-\frac{\sqrt{13}}{3}$