

UNIVERSITY OF SAN FRANCISCO

MATH PLACEMENT PRACTICE TEST

The following is a practice placement test. It is the same length as the actual test, and covers the same material. Answers (but not solutions!) are included. *Please take a few minutes to go through this test before you start the real thing.*

- (1) $(10 - 4 + 1) - 2[2(-5 + 1) + 1]$
- (2) Solve for x : $0.002x + 1 = 5$.
- (3) Simplify: $n + (m - n)^2 - n(n + 1)$.
- (4) Simplify: $a^2b\sqrt{64a^4b^{40}}$.
- (5) Evaluate: $\frac{\frac{1}{3} - 2}{5 + \frac{1}{2}}$.
- (6) Simplify: $(6x^3y^5)(-4xy)$.
- (7) Simplify: $-3z + 2(x - z) - 5(z + 4)$.
- (8) Find the points where the graph of the of the equation $5x - 4y + 10 = 0$ crosses the x and y axes.
- (9) The revenue of ABC Company is given by $R = \frac{1}{2}P + 20$, where P is the company's per-hour rate. What per-hour rate will generate a revenue of 200?
- (10) Simplify: $\frac{5x^2y^8 - 10xy^2 + 15x^2y}{25x^3y^4}$.
- (11) Solve for x : $\frac{3}{2x + 1} = 1 + \frac{5x}{4x + 2}$.
- (12) Simplify: $\frac{20}{\sqrt{24}}$.
- (13) Find the equation of the line with slope 2 that passes through the point $(-3, 1)$. Give the equation in slope-intercept form.

- (14) Evaluate: $2^3 3^1 5^0$
- (15) Simplify: $\frac{(x+2)}{x-2} \cdot \frac{x}{x^2-4}$.
- (16) Find all values of k for which $|-3k| = 12$.
- (17) Solve: $10x - 3 > 4 + 2x$.
- (18) Solve: $3x^2 - 5x - 2 = 0$.
- (19) If $x = -\frac{3}{5}$ then what is the value of x^{-3} ?
- (20) If $\log_3 x = 4$ then what is the value of x ?
- (21) Fill in the blanks: The inequality $x^2 < -5x$ is equivalent to $_____ < x < _____$.
- (22) Fill in the blanks: The inequality $|3x + 1| < 7$ is equivalent to $_____ < x < _____$.
- (23) Simplify: $\frac{u}{v} - \frac{x}{y}$.
- (24) Factor: $x^3 + 27$.
- (25) Simplify: $\frac{x}{6y} - \frac{2x}{5y}$.
- (26) Find the point of intersection of the two lines, or say that they are parallel:
$$4x - 2y = 6, \quad 3x - y = 4.$$
- (27) If $f(x) = 3x + \frac{6-x}{2x}$ then what is the value of $f(2)$?
- (28) If $g(x) = x^2 + 2x$, what is $g(x-h)$?
- (29) Simplify: $27^{-2/3} 16^{1/4}$.
- (30) Solve the system for y : $x - y = 9, \quad 4x + 2y = 0$.
- (31) Solve for x : $x^2 - 5x = 14$.
- (32) Solve for x : $5^x = 12$.

Answers:

(1) 21

(2) $x = 2000$

(3) $m^2 - 2mn$

(4) $8a^4b^{21}$

(5) $-\frac{10}{33}$

(6) $-24x^4y^6$

(7) $-10z + 2x - 20$

(8) x -axis is crossed at -2 , crosses y -axis at 2.5

(9) $P = 360$

(10) $\frac{xy^7 - 2y + 3x}{5x^2y^3}$

(11) $x = \frac{4}{9}$

(12) $5\sqrt{\frac{2}{3}}$ or $\frac{5\sqrt{6}}{3}$

(13) $y = 2x + 7$

(14) 24

(15) $\frac{x}{(x-2)^2}$

(16) $k = \pm 4$

(17) $x > \frac{7}{8}$

(18) $x = 2$ or $x = -\frac{1}{3}$

(19) $-\frac{125}{27}$

(20) $x = 81$

(21) $-5 < x < 0$

$$(22) -\frac{8}{3} < x < 2$$

$$(23) \frac{uy - xv}{vy}$$

$$(24) (x + 3)(x^2 - 3x + 9)$$

$$(25) \frac{-7x}{30y}$$

$$(26) x = 1, y = -1.$$

$$(27) 7$$

$$(28) x^2 + h^2 - 2xh + 2x - 2h$$

$$(29) \frac{2}{9}$$

$$(30) y = -6$$

$$(31) x = 7 \text{ or } x = -2$$

$$(32) x = \log_5 12$$