Date Completed: _____
Mentor Initials: _____

X and Y-Intercepts

Multiple Choice

1. In the xy-plane, what is the x-coordinate of the x-intercept of the graph of $y = mx + b$, where m and b are positive constants?

A) b

B) $\frac{xy}{b}$

C) $\frac{b}{m}$

D) $\frac{-b}{m}$

2. In the xy-plane, what is the y-intercept of the graph of $y = 5^x$?

A) $(0, 5)$

B) $(0, 0)$

C) $(0, 1)$

D) $(5, 1)$

3. In the xy-plane, what is the y-coordinate of the y-intercept of the graph of $hx + jy = k$, where h, j, and k are positive constants?

A) $\frac{h+j}{k}$

B) $\frac{k}{h}$

C) $\frac{h}{k}$

D) $\frac{k}{j}$

4. Function $f(x)$ has the equation $f(x) = |3x - 5| + 2$. When $f(x)$ is graphed in the xy-plane, which of the following is an x-coordinate of an x-intercept of the function?

A) $\frac{5}{3}$

B) -5

C) 7

D) $f(x)$ has no x-intercepts.

5. $y = 4x^4 + 3x^3 + 2x^2 - 4$

When the equation above is graphed in the xy-plane, at what point does it intersect the y-axis?

A) $(24, 0)$
B) $(0, 2)$
C) $(0, -2)$
D) $(0, -4)$

6. In the xy-plane, what is the y-coordinate of the y-intercept of the graph of $y = j\sqrt{kx + h}$, where j, h, and k are positive constants?

A) $\frac{j}{k}$
B) $\frac{-h}{k}$
C) $\frac{\sqrt{h}}{k}$
D) $j\sqrt{h}$

7. In the xy-plane, what is the x-coordinate of the x-intercept of the graph of $y = 3\sqrt{x + 8}$?

A) $2\sqrt{2}$
B) $\frac{\sqrt{2}}{3}$
C) 4
D) -8

8. In the xy-plane, what is the y-intercept of the graph of $y = c(14)^x - d$, where c and d are positive constants?

A) $(0, c)$
B) $(0, -d)$
C) $(0, -cd)$
D) $(0, c - d)$

9. Parabola H in the xy-plane has equation $x - 3y^2 - 6y + 13 = 0$. Which equation shows the x-intercept(s) of the parabola as constants or coefficients?

A) $x = 3y^2 + 6y - 13$
B) $x = 2(y + 2)^2 + 3$
C) $x - 3 = 2(y + 2)^2$
D) $y = -\sqrt{\frac{x-3}{2}} - 2$

10. $f(x) = 2^{-3(x-1)}$

Which of the following equivalent forms of the given function f displays, as the base or the coefficient, the y-coordinate of the y-intercept of the graph of $y = f(x)$ in the xy-plane?

A) $f(x) = (\frac{1}{2})^{3x-3}$

B) $f(x) = 8(\frac{1}{2})^{3x}$

C) $f(x) = 512^{(-\frac{1}{3}x+\frac{1}{3})}$

D) $f(x) = 2^{(-3x+3)}$

Grid-In

11. The function f is defined by $f(x) = -4x + 12$. The x-intercept of the graph of $y = f(x)$ in the xy-plane is $(x, 0)$. What is the value of x ?

12. What is the y-coordinate of the y-intercept of the graph of $y = 4^x + 7$?

13. In the xy-plane, what is the y-coordinate of the y-intercept of the graph of $y = (x + 2)(x + 5)(x + 6)$?

14. Function $f(x)$ has the equation $f(x) = -\left|\frac{2}{3}x - 4\right|$ When $f(x)$ is graphed in the xy-plane, what is the x-coordinate of the x-intercept of the function?

15. The function f is defined by $f(x) = (6)(4)^x + 7$. What is the y-coordinate of the y-intercept of the graph of $y = f(x)$ in the xy-plane?