

Clarkson Calculus Readiness Test 18P

No books, no notes, no calculator!

1. Find an equation for the line through the point $(1, -7)$ with slope -2 .
2. Expand $(2x + 3)^2$.
3. Rewrite using fractional exponents and simplify $3a\sqrt{12a} - \sqrt{(4a)^3}$.
4. Sketch the graph of $y = x^3$ for $-2 < x < 2$. Label the scales on the axes.
5. At what value of x does the line $2x + 3y = 7$ intersect the line $y = 1$?
6. Factor the polynomial $x^3 + x^2 - x - 1$, given that $x = 1$ is a root.
7. Solve $128 + 16t - 16t^2 = 0$.
8. Sketch the graph of $y = \cos(x)$ for $-5 < x < 5$. Label the scales on the axes.
9. If $\cos(A) = -0.6$, and $0 < A < \pi$, find the numerical values of $\sin(A)$ and $\tan(A)$.
10. The short leg of a 30-60-90 triangle measures 7 cm. How long are the long leg and hypotenuse?
11. Solve $2x + 7 > 3$ for x .
12. Find the surface area of a cylindrical can with diameter 3 inches and height 6 inches.
13. For $f(x) = \frac{x}{x+1}$, find $\frac{f(x+h)-f(h)}{h}$ and simplify.
14. Find the numerical value of $\sin(7\pi/6)$.
15. Complete the square: $x^2 + 4x + 1$.
16. Solve for all values of x : $\frac{1}{x} - \frac{1}{x+1} = \frac{1}{6}$.
17. A poster with dimensions L by W is to be made with these specifications: margins of one inch on each side; printed area inside the margins 180 sq. in. Find a formula that gives the length in terms of the width.
18. If the length of the poster is to be twice the width, find the dimensions of the poster.