MATH 100 – WORKSHEET 35
ANTIDERIVATIVES

1. Warmup

(1) (Multiplication)
   (a) Calculate $7 \times 8 =$
   (b) Find a, b such that $ab = 15$.

(2) (Trig functions)
   (a) Calculate $\sin \frac{\pi}{3}$.
   (b) Find θ such that $\sin \theta = 1$.

(3) Simple differentiation
   (a) Find one f such that $f'(x) = 1$.
   (b) Find *all* such f.
   (c) Find f such that $f(7) = 3$.

2. Antidifferentiation by massaging

(1) Find f such that $f'(x) = -\frac{1}{x}$.

(2) Find f such that $f'(x) = \cos x$.

(3) Find all f such that $f'(x) = \cos x - \frac{1}{x}$.

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(4) Find f such that $f'(x) = 2x^{1/3} - x^{-2/3}$ and $f(1000) = 5$.

(5) Find f such that $f''(x) = \sin x + \cos x$, $f(0) = 0$ and $f'(0) = 1$.

(6) A cannonball is thrown off a tower of height H. Suppose that it starts from rest at the top of the tower and that its acceleration is constant (equal to g). When does it hit the ground?