

## Math 126A

### Easy (or at least elementary) Techniques of Integration

The following integrals use “easy” techniques of integration: substitution, completing the square, reducing an improper fraction, and using trig identities to simplify an integrand. You may work on these with a partner. When you are confronted with a lot of integrals to do, start each one by figuring out what technique or techniques apply. In real life, integrals don’t come sorted into categories by techniques. Then do the integral.

1.  $\int \frac{dx}{x - \sqrt{x}}$

2.  $\int \frac{2^{\ln x}}{x} dx$

3.  $\int \frac{x^2}{x^2 + 1} dx$

4.  $\int \frac{d\theta}{\sqrt{2\theta - \theta^2}}$

$$5. \int_{-\pi}^0 \sqrt{1 + \cos(t)} dt$$

$$6. \int_{-1}^3 \frac{4x^3 - 7}{2x + 3} dx$$

$$7. \int (\sin 3x \cos 2x - \sin 2x \cos 3x) dx$$

$$8. \int_{\pi/2}^{\pi} \sin(y) e^{\cos(y)} dy$$

$$9. \int \frac{e^{\sqrt{t}}}{\sqrt{t}} dt$$