Review   MAT1120   **Name:** _____

1. Identify which method from among w-subs, parts, partial fractions, trig sub, improper, calc 1, not elementary (i.e. approximation methods)

   a) $\int_0^1 e^{-x^2} dx$

   b) $\int x e^{-x^2} dx$

   c) $\int x e^{-x} dx$

   d) $\int \frac{x^2}{\sqrt{4-x^2}} dx$

   e) $\int \frac{x}{\sqrt{4-x^2}} dx$

   f) $\int \frac{3}{4-x} dx$

   g) $\int \frac{3}{\sqrt{4-x}} dx$

   h) $\int \frac{1}{4-x^2} dx$

   i) $\int \frac{1}{1+x^2} dx$

   j) $\int_0^{\frac{\pi}{4}} \frac{1}{\cos^2(x)} dx$

   k) $\int_0^{\frac{\pi}{2}} \frac{1}{\cos^2(x)} dx$

2. Match the technique we could successfully use to compute the antiderivative, as per instructions. Circle your final response or write it on the line.

Technique	What I want you to show me (don't integrate the final integral!)
w-Sub	w, dw, and the integral with respect to w
Parts	u, u', v, v', and $uv - \int u'v\,dx$
Partial Fractions	the expansion, and the system of linear equations to solve for A, B
Trig Sub	triangle pic, $x \& dx$, integral with respect to θ reduced
Improper	limit integral set up

3. Evaluate the following integrals and show work and/or reasoning, including limits—but only if they apply. If numbers need to be plugged in you don't need to simplify, ie $\ln|5 - 3|$ or similar is ok here. If it is improper, do clarify whether the integral converges or diverges. Circle your final response.