



## A couple of non-convergent potential integrals.

```
$Assumptions = a > 0 && b > 0 && c > 0;  
Integrate[ (-z) (a^2 + z^2)^(-3/2), {z, -Infinity, Infinity}]  
Integrate[ (a^2 + z^2)^(-3/2), {z, -Infinity, Infinity}]  
Integrate[ u (a^2 + u^2 + v^2)^(-3/2),  
  {u, -Infinity, Infinity}, {v, -Infinity, Infinity}]
```

0

$$\frac{2}{a^2}$$

 **Integrate:** Integral of  $\frac{2u}{a^2 + u^2}$  does not converge on  $\{-\infty, \infty\}$ .

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$$\int_{-\infty}^{\infty} \frac{2u}{a^2 + u^2} du$$