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**Problem 17)** Changing the variable from  $x$  to  $\theta$ , where  $x = \sin^2 \theta$ , yields

$$\int_0^1 (x^n / \sqrt{1-x}) dx = 2 \int_0^{\pi/2} \frac{\sin^{2n}(\theta) \sin \theta \cos \theta}{\cos \theta} d\theta = 2 \int_0^{\pi/2} \sin^{2n+1}(\theta) d\theta = 2[(2n)!! / (2n+1)!!].$$

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