Snead.

4. $4(x^4+y^4)=17x^2y^2$

$x+y=3$

5. $\frac{x}{20}$ = dimes

$\frac{y}{4}$ = quarters

$\frac{z}{2}$ = halfs

$\frac{x}{20}+\frac{y}{4}+\frac{z}{2}=5.10$

$\frac{x}{20}=5.10$

$x=25\frac{1}{2}$

6

I have neither given or received assistance on this Exam.

J. Snead

$$\int \frac{(a^2 - x^2)^{\frac{1}{2}}\, dx}{a^2 + x^2}$$

$$x = a \sin\varphi$$

$$dx = a \cos\varphi \, d\varphi$$

$$\int \frac{(a^2 - a^2 \sin^2\varphi)^{\frac{1}{2}}\, a \cos\varphi \, d\varphi}{a^2 + a^2 \sin^2\varphi} =$$

$$\int \frac{(1 - \sin^2\varphi)^{\frac{1}{2}} \cos\varphi}{1 + \sin^2\varphi}\, d\varphi = \int \frac{1 - \sin^2\varphi}{1 + \sin^2\varphi}\, d\varphi$$

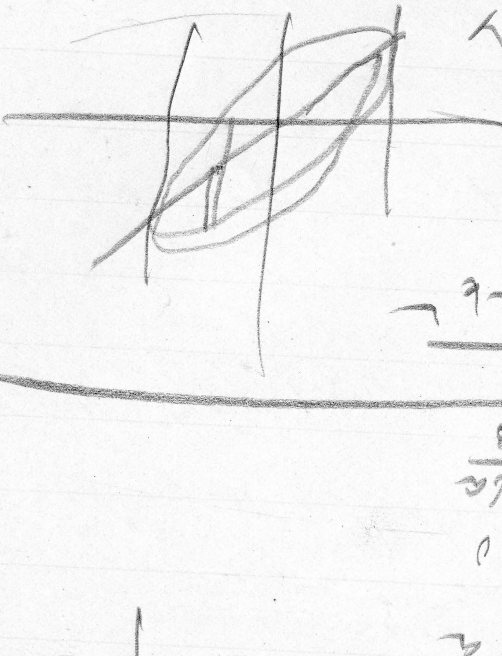
$$\sin^2\varphi \,\big)\, \sin^2\varphi + 1 \qquad 1 - \frac{1}{\cdots}$$

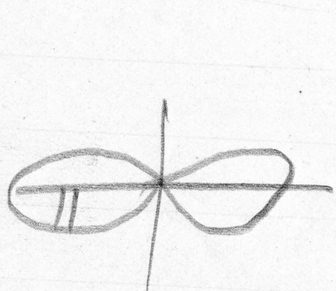
$$\sin^2\varphi + 1$$

$$\sin^2\varphi \,\big)\, 1 + \sin^2\varphi$$

$$1 + \sin^2\varphi \qquad 1$$

$$\frac{-1}{1 + \sin^2\varphi}$$





$$z = \frac{b}{a^2}\, x\, (a^2 - x^2)^{\frac{1}{2}}$$

$$\int z\, dx = \frac{-b}{2a^2} \int (a^2 - x^2)^{\frac{1}{2}} (-2x\, dx)$$

$$= \frac{-b}{2a^2} \frac{(a^2 - x^2)^{\frac{3}{2}}}{\frac{3}{2}}$$

$$= -\frac{b}{3a^2} (a^2 - x^2)^{\frac{3}{2}} \Big]_0^a$$

$$= -\frac{b}{3a^2} a^3 = \frac{-ba}{3}$$

$$z = x \pm \sqrt{a^2 - x^2}$$

$$\int z\, dx = \int (a^2 - x^2)^{\frac{1}{2}} dx$$

$$= \int \frac{a^2\, dx}{\sqrt{a^2 - x^2}} - \int \frac{x^2\, dx}{\sqrt{a^2 - x^2}}$$