

No calculators will be allowed and no partial credit will be given.

1. Find the Taylor polynomial of degree 2 for $h(x) = \sin(x)$ centered at $-\frac{\pi}{4}$.
2. Find the Taylor polynomial of degree 2 for $g(x) = -3 \ln(4x)$ centered at $\frac{1}{4}$.
3. Find the Taylor polynomial of degree 2 for $f(x) = \sqrt{5}\sqrt{x}$ centered at $\frac{1}{5}$.
4. Find the Taylor polynomial of degree 2 for $g(x) = \frac{1}{(2-x)^3}$ centered at 1.
5. Find the Taylor polynomial of degree 3 for $h(x) = -2(x+3)^6$ centered at -4 .

1. $-\frac{\sqrt{2}}{2} + \frac{\sqrt{2} \left(x + \frac{\pi}{4}\right)}{2} + \frac{\sqrt{2} \left(x + \frac{\pi}{4}\right)^2}{4}$

2. $-12 \left(x - \frac{1}{4}\right) + 24 \left(x - \frac{1}{4}\right)^2$

3. $1 + \frac{5 \left(x - \frac{1}{5}\right)}{2} - \frac{25 \left(x - \frac{1}{5}\right)^2}{8}$

4. $1 + 3(x - 1) + 6(x - 1)^2$

5. $-2 + 12(x + 4) - 30(x + 4)^2 + 40(x + 4)^3$