Stage 3

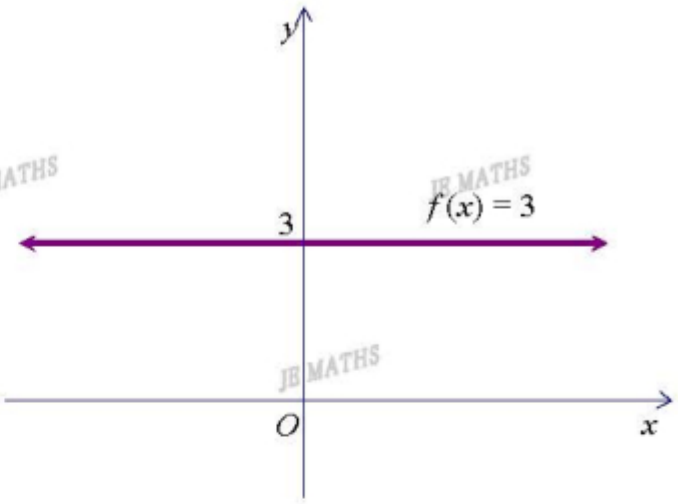
1. Consider the constant function $f(x)=3$.

$f(-2)=$_____, $f'(-2)=$_____

$f(0)=$_____, $f'(0)=$_____

$f\left(\frac{1}{4}\right)=$_____, $f'\left(\frac{1}{4}\right)=$_____

$f'(x)=$_____



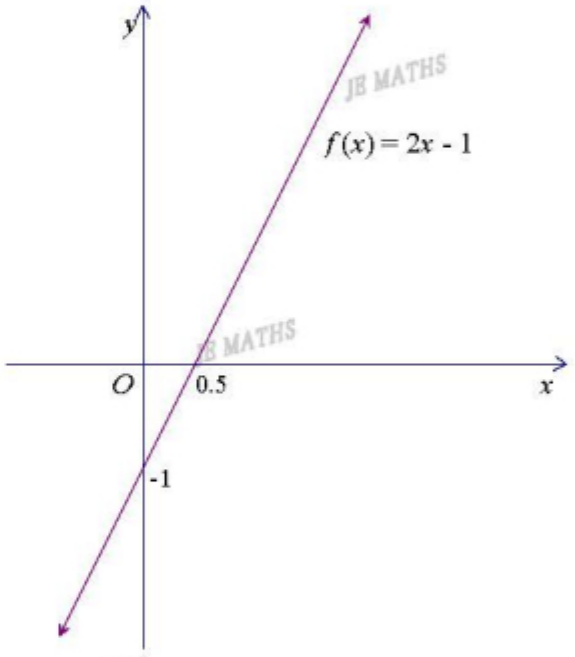
2. Consider the constant function $f(x)=2x-1$.

$f(-1)=$_____, $f'(-1)=$_____

$f(0)=$_____, $f'(0)=$_____

$f(2)=$_____, $f'(2)=$_____

$f'(x)=$_____



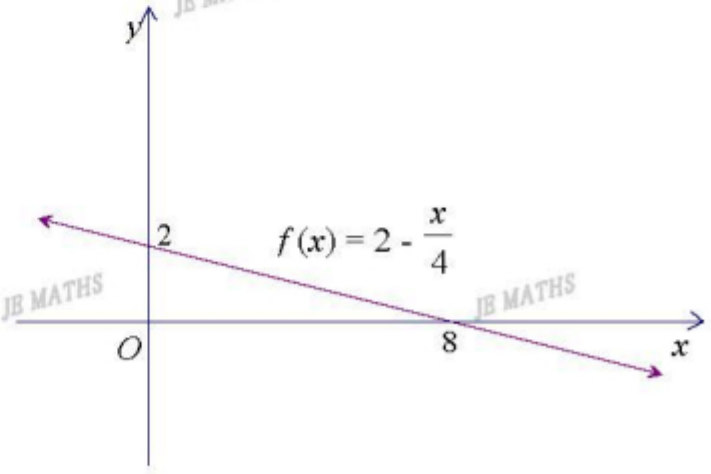
3. Consider the constant function $f(x)=2-\frac{x}{4}$.

$f(0)=$_____, $f'(0)=$_____

$f(4)=$_____, $f'(4)=$_____

$f(8)=$_____, $f'(8)=$_____

$f'(x)=$_____



4. Use the result " if $f(x)=c$ is a constant function, then $f'(x)=0$ is a zero function", find the derivative $f'(x)$.

(a) $f(x)=1$

(b) $f(x)=4$

(c) $f(x)=\frac{1}{2}$

(d) $f(x)=29$

(e) $f(x)=-1$

(f) $f(x)=-13$

(g) $f(x)=-\frac{4}{3}$

5. Use the result " if $f(x)=mx+b$ is a linear function, then $f'(x)=m$ is a constant function", find the derivative $f'(x)$.

(a) $f(x)=x$

(b) $f(x)=2x$

(c) $f(x)=11x$

(d) $f(x)=\frac{3}{4}x$

(e) $f(x)=-x$

(f) $f(x)=-3x$

(g) $f(x)=-\frac{5}{2}x$

(h) $f(x)=\sqrt{3}x$

6. Use the result " if $f(x)=mx+b$ is a linear function, then $f'(x)=m$ is a constant function", find the derivative $f'(x)$.

(a) $f(x)=x+3$

(b) $f(x)=x-5$

(c) $f(x)=8x+11$

(d) $f(x)=6x-7$

(e) $f(x)=1-4x$

(f) $f(x)=3-15x$

(g) $f(x)=\frac{1}{2}x-\frac{3}{5}$

(h) $f(x)=6-\frac{13}{4}x$

(i) $f(x)=1-\frac{x}{3}$

(j) $f(x)=12-\frac{5x}{7}$

(k) $f(x)=5(2x-3)$

(l) $f(x)=\frac{1}{3}(2-7x)$

(m) $f(x)=\frac{2-x}{5}$

(n) $f(x)=\frac{3}{4}\left(1-\frac{x}{2}\right)$

Stage 3

1. $f(-2)=3$, $f'(-2)=0$

   $f(0)=3$, $f'(0)=0$

   $f\left(\frac{1}{4}\right)=3$, $f'\left(\frac{1}{4}\right)=0$

   $f'(x)=0$

2. $f(-1)=-3$, $f'(-1)=2$

   $f(0)=-1$, $f'(0)=2$

   $f(2)=3$, $f'(2)=2$

   $f'(x)=2$

3. $f(0)=2$, $f'(0)=-\frac{1}{4}$

   $f(4)=1$, $f'(4)=-\frac{1}{4}$

   $f(8)=0$, $f'(8)=-\frac{1}{4}$

   $f'(x)=-\frac{1}{4}$

4. (a)~(f) $f'(x)=0$

5. (a) $f'(x)=1$ (b) $f'(x)=2$

   (c) $f'(x)=11$ (d) $f'(x)=\frac{3}{4}$

   (e) $f'(x)=-1$ (f) $f'(x)=-3$

   (g) $f'(x)=-\frac{5}{2}$ (h) $f'(x)=\sqrt{3}$

6. (a) $f'(x)=1$ (b) $f'(x)=1$

(c) $f'(x)=8$ (d) $f'(x)=6$

(e) $f'(x)=-4$ (f) $f'(x)=-15$

(g) $f'(x)=\frac{1}{2}$ (h) $f'(x)=-\frac{13}{4}$

(i) $f'(x)=-\frac{1}{3}$ (j) $f'(x)=\frac{5}{7}$

(k) $f'(x)=10$ (l) $f'(x)=-\frac{7}{3}$

(m) $f'(x)=-\frac{1}{5}$ (n) $f'(x)=-\frac{3}{8}$