Question 1

Suppose

$$f(x) = c$$

Use the definition of the derivative to find $f'(a)$

1.	$f'(a) = 1$	4.	$f'(a) = 0$
2.	$f'(a) = ca$	5.	the limit does not exist
3.	$f'(a) = c$	6.	none of the above

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3.	$f'(a) = c$	6.	none of the above

4. $f'(a) = 0$ for any a

Question 2

Suppose

$$f(x) = x$$

Use the definition of the derivative to find $f'(a)$

1. $f'(a) = 1$
2. $f'(a) = ca$
3. $f'(a) = c$
4. $f'(a) = 0$
5. the limit does not exist
6. none of the above

Question 2

Suppose

$$f(x) = x$$

Use the definition of the derivative to find $f'(a)$

1.	$f'(a) = 1$	4.	$f'(a) = 0$
2.	$f'(a) = ca$	5.	the limit does not exist
3.	$f'(a) = c$	6.	none of the above

1. $f'(a) = 1$ for any a

The Power Rule

The algebra is a bit complicated but with enough time and patience we could show that if $f(x) = x^n$ for some positive integer n, then

$$f'(a) = na^{n-1}$$

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It can be shown that the formula even works when n is not a positive integer; n can be any real number.

Question 3

Suppose

$$f(x) = x^7$$

Use the definition of the derivative to find $f'(a)$

1. $f'(a) = 6a^7$
2. $f'(a) = 7a^6$
3. $f'(a) = a^7$
4. $f'(a) = 6a^7$
5. the limit does not exist
6. none of the above

Question 3

Suppose

$$f(x) = x^7$$

Use the definition of the derivative to find $f'(a)$

1.	$f'(a) = 6a^7$	4.	$f'(a) = 6a^7$
2.	$f'(a) = 7a^6$	5.	the limit does not exist
3.	$f'(a) = a^7$	6.	none of the above

2. $f'(a) = 7a^6$ for any a

Question 4

Suppose

$$f(x) = x^4$$

Use the definition of the derivative to find $f'(a)$

1. $f'(a) = 4a^3$
2. $f'(a) = 3a^4$
3. $f'(a) = a^3$
4. $f'(a) = 4a^4$
5. the limit does not exist
6. none of the above

Question 4

Suppose

$$f(x) = x^4$$

Use the definition of the derivative to find $f'(a)$

1. $f'(a) = 4a^3$
2. $f'(a) = 3a^4$
3. $f'(a) = a^3$
4. $f'(a) = 4a^4$
5. the limit does not exist
6. none of the above

1. $f'(a) = 4a^3$ for any a