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```
%Question Number 1 > f
syms x
z=(x+x*cos(x))/(sin(x)*cos(x))
limit(z,x,0)
```

```
z =
 x + x cos(x)
 cos(x) sin(x)

ans = 2
```

WORKSPACE

Name	Value	Size
ans	1×1 sym	1×1
g	1×1 symfun	1×1
h	1×1 symfun	1×1
t	1×1 symfun	1×1
x	1×1 sym	1×1
y	1×1 sym	1×1
z	1×1 sym	1×1

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```
1  %Question Number 1 > e
2  syms x
3  y = ((x-x*cos(x))/(sin(3*x))^2)
4  limit(y,x,0)
5
```

```
y =

x - x cos(x)
------------
 sin(3 x)^2

ans = 0
```

WORKSPACE

Name	Value	Size
ans	1×1 sym	1×1
g	1×1 symfun	1×1
h	1×1 symfun	1×1
t	1×1 symfun	1×1
x	1×1 sym	1×1
y	1×1 sym	1×1
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```
1  %Question Number 1 > d
2  syms x
3  t(x)= ((2-sqrt(x^2-5))/(x+3))
4  limit(t(x),x,-3)
5
```

t(x) =

$$-\frac{\sqrt{x^2-5}-2}{x+3}$$

ans =

$$\frac{3}{2}$$

WORKSPACE

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ans	1×1 sym	1×1
g	1×1 symfun	1×1
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t	1×1 symfun	1×1
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```
1  %Question Number 1 > c
2  syms x
3  h(x) = ((x+2)/(sqrt(x^2+5)-3))
4  limit(h(x),x,-2)
```

h(x) =

$$\frac{x+2}{\sqrt{x^2+5}-3}$$

ans =

$$-\frac{3}{2}$$

WORKSPACE

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h	1×1 symfun	1×1
t	1×1 symfun	1×1
x	1×1 sym	1×1
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```
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2  syms x
3  g(x)= ( ( sqrt(x^2+8)-3 )/(x+1))
4  limit(g(x),x,-1)
```

g(x) =

$$\frac{\sqrt{x^2+8}-3}{x+1}$$

ans =

$$-\frac{1}{3}$$

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t	1×1 symfun	1×1
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```
1  %Question Number 1 > a
2  syms x
3  g(x)= ((1/(x-1) + 1/(x+1))/x)
4  limit(g(x),x,0)
```

g(x) =

$$\frac{\frac{1}{x-1}+\frac{1}{x+1}}{x}$$

ans = −2

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