```
> restart;
```

```
> url := currentdir();
  libname := libname, url;
```
$$url := \text{"D:\\LUAN VAN THAC SI\\CHUONG TRINH\\2011-10-19"}$$
$$libname := \text{"C:\\Program Files (x86)\\Maple 13/lib",} \tag{1}$$
$$\text{"D:\\LUAN VAN THAC SI\\CHUONG TRINH\\2011-10-19"}$$

```
> with(TriSim);
```
$[Apply, Com\_Denom, Count\_Func, Expand\_Simple, Expand\_Simple\_Rad, Expr\_Length,$ **(2)**
   $Factor\_2Expr, Factor\_Expr, Find\_Arc, Find\_Common\_2Expr, Find\_Common\_2Poly,$
   $Find\_HDT\_Exp, Find\_HDT\_Sim, Find\_Rule\_Exp, Find\_Rule\_Sim, Get\_Var\_bien\_so,$
   $Has\_Form, Heu\_Factor, Heu\_HDT\_Sim, Heu\_Rule\_Exp, Heu\_Rule\_Sim,$
   $Is\_Common\_Denom, Is\_Radical, Is\_SubExpr, Is\_SubExpr\_Add, Is\_Sub\_Coeff,$
   $Mul\_To\_Sum, Omit\_Denom\_Denom, Omit\_Sqrt, Simplify\_Simple, Simplify\_Simple\_Rad,$
   $Simplify\_Tri, Simplify\_Tri\_Poly, Simplify\_Tri\_Rad, Simplify\_Tri\_Step2,$
   $Simplify\_Tri\_Step2\_Rad, init, print\_SOL]$

▼ DNG A THC

```
> f := sin(Pi/3-x)*sin(x)*sin(Pi/3+x);
  Simplify_Tri(f);simplify(f);
  print_SOL();
```
$$f := \cos\left(\frac{1}{6}\pi + x\right)\sin(x)\sin\left(\frac{1}{3}\pi + x\right)$$

$$4\sin(x)\left(\frac{1}{4}\cos(x)^2 - \frac{1}{16}\right)$$

$$\cos\left(\frac{1}{6}\pi + x\right)\sin(x)\sin\left(\frac{1}{3}\pi + x\right)$$

    Bc 1:
    Áp dng:
$$\cos\left(\frac{1}{6}\pi + x\right)\sin\left(\frac{1}{3}\pi + x\right) = \frac{1}{4} + \frac{1}{2}\cos(2x)$$

      Ta có:
$$f = \left(\frac{1}{4} + \frac{1}{2}\cos(2x)\right)\sin(x)$$

    Bc 2:

        Tích thành tng
      Ta có:
$$f = -\frac{1}{4}\sin(x) + \cos(x)^2\sin(x)$$

    Bc 3:

Ta có:

$$f = 4 \sin(x) \left(\frac{1}{4} \cos(x)^2 - \frac{1}{16} \right) \tag{1.1}$$

```
> f := 2*(sin(x)^6+cos(x)^6)-3*(sin(x)^4+cos(x)^4);#--> Done
  Simplify_Tri(f); simplify(f);
  print_SOL();
```

$$f := 2 \sin(x)^6 + 2 \cos(x)^6 - 3 \sin(x)^4 - 3 \cos(x)^4$$

$$-1$$

$$-1$$

Bc 1:
 Áp dng:

$$\sin(x)^6 + \cos(x)^6 = 1 - 3 \sin(x)^2 \cos(x)^2$$

Ta có:

$$f = -3 \cos(x)^4 - 3 \sin(x)^4 + 2 - 6 \sin(x)^2 \cos(x)^2$$

Bc 2:
 Áp dng:

$$\sin(x)^4 + \cos(x)^4 = 1 - 2 \sin(x)^2 \cos(x)^2$$

Ta có:

$$f = -1 \tag{1.2}$$

```
> f := 1-1/4*sin(2*x)^2-sin(y)^2-cos(x)^4; #--> Better
  Simplify_Tri(f); simplify(f);
  print_SOL();
```

$$f := 1 - \frac{1}{4} \sin(2x)^2 - \sin(y)^2 - \cos(x)^4$$

$$- \cos(x)^2 + \cos(y)^2$$

$$- \frac{1}{4} + \frac{1}{4} \cos(2x)^2 + \cos(y)^2 - \cos(x)^4$$

Bc 1:
 Áp dng:

$$\sin(y)^2 = 1 - \cos(y)^2$$

Ta có:

$$f = -\frac{1}{4} \sin(2x)^2 + \cos(y)^2 - \cos(x)^4$$

Bc 2:

Tích thành tng

Ta có:

$$f = -\sin(x)^2 \cos(x)^2 + \cos(y)^2 - \cos(x)^4$$

```
                    Bc 3:
                            t tha s chung
                    Ta có:
```
$$f = -\cos(x)^2 \left(\sin(x)^2 + \cos(x)^2\right) + \cos(y)^2$$

```
                    Bc 4:
                     Áp dng:
```
$$\sin(x)^2 + \cos(x)^2 = 1$$

```
                            Ta có:
```
$$f = -\cos(x)^2 + \cos(y)^2 \tag{1.3}$$

```
> f := sin(x)^2*(1+cot(x))+cos(x)^2*(1+tan(x)); # --> Better
  Simplify_Tri(f); simplify(f);
  print_SOL();
```

$$f := \sin(x)^2 \left(1 + \cot(x)\right) + \cos(x)^2 \left(1 + \tan(x)\right)$$
$$\sin(2x) + 1$$
$$2\cos(x)\sin(x) + 1$$

```
                    Bc 1:
                     Áp dng:
```
$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

```
                            Ta có:
```
$$f = \sin(x)^2 \left(1 + \cot(x)\right) + \cos(x)^2 \left(1 + \frac{\sin(x)}{\cos(x)}\right)$$

```
                    Bc 2:
                     Áp dng:
```
$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

```
                            Ta có:
```
$$f = \sin(x)^2 \left(1 + \frac{\cos(x)}{\sin(x)}\right) + \cos(x)^2 \left(1 + \frac{\sin(x)}{\cos(x)}\right)$$

```
                    Bc 3:
                            Tích thành tng
                      Ta có:
```
$$f = \cos(x)^2 + 2\cos(x)\sin(x) + \sin(x)^2$$

```
                    Bc 4:
                     Áp dng:
```
$$\cos(x)^2 + 2\cos(x)\sin(x) + \sin(x)^2 = \left(\cos(x) + \sin(x)\right)^2$$

```
                            Ta có:
```
$$f = \left(\cos(x) + \sin(x)\right)^2$$

```
                    Bc 5:
```

Áp dng:
$$(\cos(x) + \sin(x))^2 = \cos(x)^2 + 2\cos(x)\sin(x) + \sin(x)^2$$

Ta có:
$$f = \cos(x)^2 + 2\cos(x)\sin(x) + \sin(x)^2$$

Bc 6:
Áp dng:
$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:
$$f = 2\cos(x)\sin(x) + 1$$

Bc 7:
Áp dng:
$$2\cos(x)\sin(x) = \sin(2x)$$

Ta có:
$$f = \sin(2x) + 1 \tag{1.4}$$

```
> f := sin(x)^3*(1+cot(x))+cos(x)^3*(1+tan(x)); # --> Good Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \sin(x)^3(1 + \cot(x)) + \cos(x)^3(1 + \tan(x))$$
$$\cos(x) + \sin(x)$$
$$\cos(x) + \sin(x)$$

Bc 1:
Áp dng:
$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:
$$f = \sin(x)^3(1 + \cot(x)) + \cos(x)^3\left(1 + \frac{\sin(x)}{\cos(x)}\right)$$

Bc 2:
Áp dng:
$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:
$$f = \sin(x)^3\left(1 + \frac{\cos(x)}{\sin(x)}\right) + \cos(x)^3\left(1 + \frac{\sin(x)}{\cos(x)}\right)$$

Bc 3:
Tích thành tng
Ta có:
$$f = \sin(x)^3 + \cos(x)\sin(x)^2 + \cos(x)^3 + \cos(x)^2\sin(x)$$

Bc 4:
t tha s chung

Ta có:
$$f = \cos(x)\left(\sin(x)^2 + \cos(x)^2\right) + \sin(x)\left(\sin(x)^2 + \cos(x)^2\right)$$

Bc 5:
Áp dng:
$$\sin(x)^2 + \cos(x)^2 = 1$$
Ta có:
$$f = \cos(x) + \sin(x) \tag{1.5}$$

```
> f := (sin(x)+cos(x))^2+(sin(x)-cos(x))^2; # --> Good Done
  Simplify_Tri(f); simplify(f);
  print_SOL();
```
$$f := (\cos(x) + \sin(x))^2 + (\sin(x) - \cos(x))^2$$
$$2$$
$$2$$

Bc 1:
Áp dng:
$$(\cos(x) + \sin(x))^2 = \cos(x)^2 + 2\cos(x)\sin(x) + \sin(x)^2$$
Ta có:
$$f = \cos(x)^2 + 2\cos(x)\sin(x) + \sin(x)^2 + (\sin(x) - \cos(x))^2$$

Bc 2:
Áp dng:
$$(\sin(x) - \cos(x))^2 = \cos(x)^2 - 2\cos(x)\sin(x) + \sin(x)^2$$
Ta có:
$$f = 2\cos(x)^2 + 2\sin(x)^2$$

Bc 3:
Áp dng:
$$\sin(x)^2 = 1 - \cos(x)^2$$
Ta có:
$$f = 2 \tag{1.6}$$

```
> f := cos(x)^2*cot(x)^2+3*cos(x)^2-cot(x)^2+2*sin(x)^2; #--> Not
  Good
  Simplify_Tri(f); simplify(f);
  print_SOL();
```
$$f := \cos(x)^2 \cot(x)^2 + 3\cos(x)^2 - \cot(x)^2 + 2\sin(x)^2$$
$$2$$
$$2$$

Bc 1:
t tha s chung
Ta có:
$$f = \cot(x)^2\left(-1 + \cos(x)^2\right) + 3\cos(x)^2 + 2\sin(x)^2$$

Bc 2:
Áp dng:
$$-1 + \cos(x)^2 = -\sin(x)^2$$
Ta có:
$$f = -\cot(x)^2 \sin(x)^2 + 3 \cos(x)^2 + 2 \sin(x)^2$$
Bc 3:
t tha s chung
Ta có:
$$f = -\sin(x)^2 \left(-2 + \cot(x)^2\right) + 3 \cos(x)^2$$
Bc 4:
Áp dng:
$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$
Ta có:
$$f = -\sin(x)^2 \left(-2 + \frac{\cos(x)^2}{\sin(x)^2}\right) + 3 \cos(x)^2$$
Bc 5:
Tích thành tng
Ta có:
$$f = 2 \sin(x)^2 + 2 \cos(x)^2$$
Bc 6:
Áp dng:
$$\sin(x)^2 + \cos(x)^2 = 1$$
Ta có:
$$f = 2$$

(1.7)

```
> f := (sin(x)^4+cos(x)^4-1)*(tan(x)^2+cot(x)^2+2); #-->Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```
$$f := \left(\sin(x)^4 + \cos(x)^4 - 1\right) \left(\tan(x)^2 + \cot(x)^2 + 2\right)$$
$$-2$$
$$-2$$
Bc 1:
Áp dng:
$$\sin(x)^4 + \cos(x)^4 = 1 - 2 \sin(x)^2 \cos(x)^2$$
Ta có:
$$f = -2 \sin(x)^2 \cos(x)^2 \left(\tan(x)^2 + \cot(x)^2 + 2\right)$$
Bc 2:
Áp dng:
$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:

$$f = -2\sin(x)^2\cos(x)^2\left(\frac{\sin(x)^2}{\cos(x)^2} + \cot(x)^2 + 2\right)$$

Bc 3:
Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:

$$f = -2\sin(x)^2\cos(x)^2\left(\frac{\sin(x)^2}{\cos(x)^2} + \frac{\cos(x)^2}{\sin(x)^2} + 2\right)$$

Bc 4:
Tích thành tng
Ta có:

$$f = -2\sin(x)^4 - 2\cos(x)^4 - 4\sin(x)^2\cos(x)^2$$

Bc 5:
Áp dng:

$$\sin(x)^4 + \cos(x)^4 = 1 - 2\sin(x)^2\cos(x)^2$$

Ta có:

$$f = -2 \tag{1.8}$$

```
> f := (tan(x)+cot(x))^2-(tan(x)-cot(x))^2; #--> Good Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := (\cot(x) + \tan(x))^2 - (\tan(x) - \cot(x))^2$$

$$4$$

$$4$$

Bc 1:
Áp dng:

$$(\cot(x) + \tan(x))^2 = \cot(x)^2 + 2\tan(x)\cot(x) + \tan(x)^2$$

Ta có:

$$f = \cot(x)^2 + 2\tan(x)\cot(x) + \tan(x)^2 - (\tan(x) - \cot(x))^2$$

Bc 2:
Áp dng:

$$(\tan(x) - \cot(x))^2 = \cot(x)^2 - 2\tan(x)\cot(x) + \tan(x)^2$$

Ta có:

$$f = 4\tan(x)\cot(x)$$

Bc 3:
Áp dng:

$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:

$$f = \frac{4\sin(x)\cot(x)}{\cos(x)}$$

Bc 4:
 Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:
$$f = 4 \qquad\qquad\qquad \textbf{(1.9)}$$

```
> f := (1-sin(x)^2)*cot(x)^2+1-cot(x)^2;# --> Good Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \left(1 - \sin(x)^2\right)\cot(x)^2 + 1 - \cot(x)^2$$
$$\sin(x)^2$$
$$\sin(x)^2$$

Bc 1:

Qui ng
Ta có:
$$f = 1 - \cot(x)^2 - \left(-1 + \sin(x)^2\right)\cot(x)^2$$

Bc 2:

t tha s chung
 Ta có:
$$f = -\cot(x)^2\sin(x)^2 + 1$$

Bc 3:
 Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:
$$f = 1 - \cos(x)^2$$

Bc 4:
 Áp dng:

$$-1 + \cos(x)^2 = -\sin(x)^2$$

Ta có:
$$f = \sin(x)^2 \qquad\qquad\qquad \textbf{(1.10)}$$

```
> f := cos(x)^4+sin(x)^2*cos(x)^2+sin(x)^2;# --> Good Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \cos(x)^4 + \sin(x)^2\cos(x)^2 + \sin(x)^2$$
$$1$$
$$1$$

Bc 1:

Ta có:
$$f = \cos(x)^2 \left(\sin(x)^2 + \cos(x)^2 \right) + \sin(x)^2$$

Bc 2:
Áp dng:
$$\sin(x)^2 + \cos(x)^2 = 1$$

Ta có:
$$f = 1 \tag{1.11}$$

```
> f := sin(x)*cos(x)*(1+tan(x))*(1+cot(x));
  Simplify_Tri(f);simplify(f);
  print_SOL();
```
$$f := \sin(x)\,\cos(x)\,(1 + \tan(x))\,(\cot(x) + 1)$$
$$\sin(2x) + 1$$
$$2\sin(x)\cos(x) + 1$$

Bc 1:
Áp dng:
$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:
$$f = \sin(x)\,\cos(x)\left(1 + \frac{\sin(x)}{\cos(x)} \right)(\cot(x) + 1)$$

Bc 2:
Áp dng:
$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:
$$f = \sin(x)\,\cos(x)\left(1 + \frac{\sin(x)}{\cos(x)} \right)\left(\frac{\cos(x)}{\sin(x)} + 1 \right)$$

Bc 3:
Tích thành tng
Ta có:
$$f = \cos(x)^2 + 2\sin(x)\cos(x) + \sin(x)^2$$

Bc 4:
Áp dng:
$$\cos(x)^2 + 2\sin(x)\cos(x) + \sin(x)^2 = (\cos(x) + \sin(x))^2$$

Ta có:
$$f = (\cos(x) + \sin(x))^2$$

Bc 5:
Áp dng:
$$(\cos(x) + \sin(x))^2 = \cos(x)^2 + 2\sin(x)\cos(x) + \sin(x)^2$$

Ta có:

$$f = \cos(x)^2 + 2\,\sin(x)\,\cos(x) + \sin(x)^2$$

Bc 6:
Áp dng:
$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:
$$f = 2\,\sin(x)\,\cos(x) + 1$$

Bc 7:
Áp dng:
$$2\,\sin(x)\,\cos(x) = \sin(2\,x)$$

Ta có:
$$f = \sin(2\,x) + 1 \tag{1.12}$$

DNG PHÂN THC

```
> f := (-1+cos(x)^6+sin(x)^6)/(-1+cos(x)^4 +sin(x)^4);
  Simplify_Tri(f); simplify(f);
  print_SOL();
```

$$f := \frac{-1 + \cos(x)^6 + \sin(x)^6}{\sin(x)^4 + \cos(x)^4 - 1}$$

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

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

Bc 1:
Áp dng:
$$\sin(x)^6 + \cos(x)^6 = 1 - 3\,\sin(x)^2\,\cos(x)^2$$

Ta có:
$$f = -\frac{3\,\sin(x)^2\,\cos(x)^2}{\sin(x)^4 + \cos(x)^4 - 1}$$

Bc 2:
Áp dng:
$$\sin(x)^4 + \cos(x)^4 = 1 - 2\,\sin(x)^2\,\cos(x)^2$$

Ta có:
$$f = \frac{3}{2} \tag{2.1}$$

```
> f := (1+tan(x)+1/cos(x))*(1+tan(x)-1/cos(x));
  Simplify_Tri(f);simplify(f);
```

```
print_SOL();
```

$$f := \left(1 + \tan(x) + \frac{1}{\cos(x)}\right)\left(1 + \tan(x) - \frac{1}{\cos(x)}\right)$$

$$\frac{2\sin(x)}{\cos(x)}$$

$$\frac{2\sin(x)}{\cos(x)}$$

Bc 1:
Áp dng:

$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:

$$f = \left(1 + \frac{\sin(x)}{\cos(x)} + \frac{1}{\cos(x)}\right)\left(1 + \frac{\sin(x)}{\cos(x)} - \frac{1}{\cos(x)}\right)$$

Bc 2:
Tích thành tng
Ta có:

$$f = 1 + \frac{2\sin(x)}{\cos(x)} + \frac{\sin(x)^2}{\cos(x)^2} - \frac{1}{\cos(x)^2}$$

Bc 3:
t tha s chung
Ta có:

$$f = \frac{-1 + \sin(x)^2}{\cos(x)^2} + 1 + \frac{2\sin(x)}{\cos(x)}$$

Bc 4:
Áp dng:

$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:

$$f = \frac{2\sin(x)}{\cos(x)}$$

(2.2)

```
> f := (cos(x)^2*(tan(x)^2+sin(x)^2+cos(x)^2))/(tan(x)+cot(x));
  #--> Good Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \frac{\cos(x)^2\left(\tan(x)^2 + \sin(x)^2 + \cos(x)^2\right)}{\cot(x) + \tan(x)}$$

$$\sin(x)\cos(x)$$

$$\sin(x)\cos(x)$$

Bc 1:
Áp dng:

$$\sin(x)^2 + \cos(x)^2 = 1$$

Ta có:
$$f = \frac{\cos(x)^2 \left(1 + \tan(x)^2\right)}{\cot(x) + \tan(x)}$$

Bc 2:
Áp dng:
$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:
$$f = \frac{\cos(x)^2 \left(1 + \dfrac{\sin(x)^2}{\cos(x)^2}\right)}{\cot(x) + \dfrac{\sin(x)}{\cos(x)}}$$

Bc 3:
Áp dng:
$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:
$$f = \frac{\cos(x)^2 \left(1 + \dfrac{\sin(x)^2}{\cos(x)^2}\right)}{\dfrac{\cos(x)}{\sin(x)} + \dfrac{\sin(x)}{\cos(x)}}$$

Bc 4:
Tích thành tng
Ta có:
$$f = \frac{\sin(x)^2 + \cos(x)^2}{\dfrac{\cos(x)}{\sin(x)} + \dfrac{\sin(x)}{\cos(x)}}$$

Bc 5:
Áp dng:
$$\sin(x)^2 + \cos(x)^2 = 1$$

Ta có:
$$f = \frac{1}{\dfrac{\cos(x)}{\sin(x)} + \dfrac{\sin(x)}{\cos(x)}}$$

Bc 6:
Qui ng
Ta có:
$$f = \frac{\sin(x)\,\cos(x)}{\sin(x)^2 + \cos(x)^2}$$

Bc 7:
Áp dng:
$$\sin(x)^2 + \cos(x)^2 = 1$$

Ta có:
$$f = \sin(x)\,\cos(x) \tag{2.3}$$

```
> f := (1-cos(x))/sin(x)-(1+sin(x))/cos(x)+tan(x)+cot(x); #
  Better
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \frac{1 - \cos(x)}{\sin(x)} - \frac{\sin(x) + 1}{\cos(x)} + \tan(x) + \cot(x)$$

$$\frac{1}{\sin(x)} - \frac{1}{\cos(x)}$$

$$-\frac{\sin(x) - \cos(x)}{\sin(x)\,\cos(x)}$$

Bc 1:

Qui ng

Ta có:

$$f = \frac{1 - \cos(x)}{\sin(x)} + \frac{-\sin(x) - 1}{\cos(x)} + \cot(x) + \tan(x)$$

Bc 2:

Áp dng:

$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:

$$f = \frac{1 - \cos(x)}{\sin(x)} + \frac{-\sin(x) - 1}{\cos(x)} + \cot(x) + \frac{\sin(x)}{\cos(x)}$$

Bc 3:

Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:

$$f = \frac{1 - \cos(x)}{\sin(x)} + \frac{-\sin(x) - 1}{\cos(x)} + \frac{\cos(x)}{\sin(x)} + \frac{\sin(x)}{\cos(x)}$$

Bc 4:

Tích thành tng

Ta có:

$$f = \frac{1}{\sin(x)} - \frac{1}{\cos(x)} \tag{2.4}$$

```
> f := (tan(x)^2-cos(x)^2)/sin(x)^2+(cot(x)^2-sin(x)^2)/cos(x)^2;
  # --> Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \frac{\tan(x)^2 - \cos(x)^2}{\sin(x)^2} + \frac{\cot(x)^2 - \sin(x)^2}{\cos(x)^2}$$

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

Bc 1:
 Áp dng:

$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:

$$f = \frac{\dfrac{\sin(x)^2}{\cos(x)^2} - \cos(x)^2}{\sin(x)^2} + \frac{\cot(x)^2 - \sin(x)^2}{\cos(x)^2}$$

Bc 2:
 Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:

$$f = \frac{\dfrac{\sin(x)^2}{\cos(x)^2} - \cos(x)^2}{\sin(x)^2} + \frac{\dfrac{\cos(x)^2}{\sin(x)^2} - \sin(x)^2}{\cos(x)^2}$$

Bc 3:
        Tích thành tng
   Ta có:

$$f = \frac{1}{\cos(x)^2} - \frac{\cos(x)^2}{\sin(x)^2} + \frac{1}{\sin(x)^2} - \frac{\sin(x)^2}{\cos(x)^2}$$

Bc 4:
 Áp dng:

$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:

$$f = \frac{1}{\cos(x)^2} - \frac{\cos(x)^2}{\sin(x)^2} + \frac{1}{\sin(x)^2} - \frac{1 - \cos(x)^2}{\cos(x)^2}$$

Bc 5:
        Tích thành tng
   Ta có:

$$f = -\frac{\cos(x)^2}{\sin(x)^2} + \frac{1}{\sin(x)^2} + 1$$

Bc 6:
 Áp dng:

$$\cos(x)^2 = 1 - \sin(x)^2$$

Ta có:

$$f = -\frac{1 - \sin(x)^2}{\sin(x)^2} + \frac{1}{\sin(x)^2} + 1$$

Tích thành tng

Ta có:

$$f = 2 \tag{2.5}$$

```
> f := (cot(x)^2-cos(x)^2)/cot(x)^2+sin(x)*cos(x)/cot(x); #-->
  Done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \frac{\cot(x)^2 - \cos(x)^2}{\cot(x)^2} + \frac{\sin(x)\cos(x)}{\cot(x)}$$

$$1$$
$$1$$

Bc 1:

Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:

$$f = \frac{\left(\dfrac{\cos(x)^2}{\sin(x)^2} - \cos(x)^2\right)\sin(x)^2}{\cos(x)^2} + \sin(x)^2$$

Bc 2:

Tích thành tng

Ta có:

$$f = 1 \tag{2.6}$$

```
> f := (2*cos(x)^2-1)/(sin(x)+cos(x)); # --> Good done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \frac{2\cos(x)^2 - 1}{\cos(x) + \sin(x)}$$

$$\cos(x) - \sin(x)$$
$$\cos(x) - \sin(x)$$

Bc 1:

Áp dng:

$$2\cos(x)^2 - 1 = \cos(x)^2 - \sin(x)^2$$

Ta có:

$$f = \frac{\cos(x)^2 - \sin(x)^2}{\cos(x) + \sin(x)}$$

Bc 2:

Áp dng:

$$\cos(x)^2 - \sin(x)^2 = (\cos(x) + \sin(x))(\cos(x) - \sin(x))$$

Ta có:

$$f = \cos(x) - \sin(x) \qquad \qquad \textbf{(2.7)}$$

```
> f := cos(x)*tan(x)/sin(x)^2-cot(x)*cos(x); #--> Good done
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \frac{\cos(x)\,\tan(x)}{\sin(x)^2} - \cos(x)\,\cot(x)$$

$$\sin(x)$$
$$\sin(x)$$

Bc 1:

      t tha s chung

Ta có:

$$f = \cos(x) \left(\frac{\tan(x)}{\sin(x)^2} - \cot(x) \right)$$

Bc 2:

Áp dng:

$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

     Ta có:

$$f = \cos(x) \left(\frac{1}{\sin(x)\,\cos(x)} - \cot(x) \right)$$

Bc 3:

Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

     Ta có:

$$f = \cos(x) \left(\frac{1}{\sin(x)\,\cos(x)} - \frac{\cos(x)}{\sin(x)} \right)$$

Bc 4:

      Tích thành tng

Ta có:

$$f = \frac{1}{\sin(x)} - \frac{\cos(x)^2}{\sin(x)}$$

Bc 5:

      t tha s chung

Ta có:

$$f = - \frac{-1 + \cos(x)^2}{\sin(x)}$$

Bc 6:

Áp dng:

$$-1 + \cos(x)^2 = -\sin(x)^2$$

     Ta có:

$$f = \sin(x) \qquad \qquad \textbf{(2.8)}$$

```
> f := (cos(x)^2-sin(y)^2)/(sin(x)^2*sin(y)^2)-cot(x)^2*cot(y)^2;
  #--> Better
  Simplify_Tri(f);simplify(f);
  print_SOL();
```

$$f := \frac{\cos(x)^2 - \sin(y)^2}{\sin(x)^2 \sin(y)^2} - \cot(x)^2 \cot(y)^2$$

$$-1$$

$$-\frac{-\cos(x)^2 + 1 - \cos(y)^2 + \cos(x)^2 \cos(y)^2}{\sin(x)^2 \sin(y)^2}$$

Bc 1:
  Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

   Ta có:

$$f = \frac{\cos(x)^2 - \sin(y)^2}{\sin(x)^2 \sin(y)^2} - \frac{\cos(x)^2 \cot(y)^2}{\sin(x)^2}$$

Bc 2:
  Áp dng:

$$\cot(y) = \frac{\cos(y)}{\sin(y)}$$

   Ta có:

$$f = \frac{\cos(x)^2 - \sin(y)^2}{\sin(x)^2 \sin(y)^2} - \frac{\cos(x)^2 \cos(y)^2}{\sin(x)^2 \sin(y)^2}$$

Bc 3:
         Tích thành tng
   Ta có:

$$f = \frac{\cos(x)^2}{\sin(x)^2 \sin(y)^2} - \frac{1}{\sin(x)^2} - \frac{\cos(x)^2 \cos(y)^2}{\sin(x)^2 \sin(y)^2}$$

Bc 4:
         t tha s chung
   Ta có:

$$f = -\frac{\cos(x)^2 \left(-1 + \cos(y)^2 \right)}{\sin(x)^2 \sin(y)^2} - \frac{1}{\sin(x)^2}$$

Bc 5:
  Áp dng:

$$-1 + \cos(y)^2 = -\sin(y)^2$$

       Ta có:

$$f = \frac{\cos(x)^2}{\sin(x)^2} - \frac{1}{\sin(x)^2}$$

Bc 6:
```

Ta có:

$$f = \frac{-1 + \cos(x)^2}{\sin(x)^2}$$

Bc 7:
Áp dng:

$$-1 + \cos(x)^2 = -\sin(x)^2$$

Ta có:

$$f = -1 \tag{2.9}$$

```
> f := sin(x)/(sin(x)-cos(x)^2/sin(x))-cos(x)^2/(2*sin(x)^2-1); #
  --> Not good
  Simplify_Tri(f);
  simplify(f);
  print_SOL();
```

$$f := \frac{\sin(x)}{\sin(x) - \dfrac{\cos(x)^2}{\sin(x)}} - \frac{\cos(x)^2}{2\sin(x)^2 - 1}$$

$$1$$

$$1$$

Bc 1:

Qui ng

Ta có:

$$f = -\frac{\cos(x)^2}{2\sin(x)^2 - 1} - \frac{\sin(x)^2}{\cos(x)^2 - \sin(x)^2}$$

Bc 2:
Áp dng:

$$\cos(x)^2 - \sin(x)^2 = \cos(2x)$$

Ta có:

$$f = -\frac{\cos(x)^2}{2\sin(x)^2 - 1} - \frac{\sin(x)^2}{\cos(2x)}$$

Bc 3:
Áp dng:

$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1 - \cos(x)^2}{\cos(2x)}$$

Bc 4:

Tích thành tng

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{2\cos(x)^2 - 1} + \frac{\cos(x)^2}{2\cos(x)^2 - 1}$$

Bc 5:

t tha s chung

Ta có:

$$f = 2\cos(x)^2 \left(\frac{1}{2\left(2\cos(x)^2 - 1\right)} - \frac{1}{2\left(1 - 2\cos(x)^2\right)} \right) - \frac{1}{2\cos(x)^2 - 1}$$

Bc 6:

Áp dng:

$$2\cos(x)^2 - 1 = \cos(x)^2 - \sin(x)^2$$

Ta có:

$$f = 2\cos(x)^2 \left(\frac{1}{2\left(\cos(x)^2 - \sin(x)^2\right)} - \frac{1}{2\left(1 - 2\cos(x)^2\right)} \right) - \frac{1}{\cos(x)^2 - \sin(x)^2}$$

Bc 7:

Tích thành tng

Ta có:

$$f = \frac{\cos(x)^2}{\cos(x)^2 - \sin(x)^2} - \frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{\cos(x)^2 - \sin(x)^2}$$

Bc 8:

Áp dng:

$$\cos(x)^2 - \sin(x)^2 = \cos(2x)$$

Ta có:

$$f = \frac{\cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{\cos(2x)}$$

Bc 9:

t tha s chung

Ta có:

$$f = \frac{-1 + \cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2}$$

Bc 10:

Áp dng:

$$-1 + \cos(x)^2 = -\sin(x)^2$$

Ta có:

$$f = -\frac{\sin(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2}$$

Bc 11:

Áp dng:

$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1 - \cos(x)^2}{\cos(2x)}$$

Bc 12:

Tích thành tng

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{2\cos(x)^2 - 1} + \frac{\cos(x)^2}{2\cos(x)^2 - 1}$$

Bc 13:

t tha s chung

Ta có:

$$f = 2\cos(x)^2 \left(\frac{1}{2(2\cos(x)^2 - 1)} - \frac{1}{2(1 - 2\cos(x)^2)} \right) - \frac{1}{2\cos(x)^2 - 1}$$

Bc 14:

Áp dng:

$$2\cos(x)^2 - 1 = \cos(x)^2 - \sin(x)^2$$

Ta có:

$$f = 2\cos(x)^2 \left(\frac{1}{2(\cos(x)^2 - \sin(x)^2)} - \frac{1}{2(1 - 2\cos(x)^2)} \right) - \frac{1}{\cos(x)^2 - \sin(x)^2}$$

Bc 15:

Tích thành tng

Ta có:

$$f = \frac{\cos(x)^2}{\cos(x)^2 - \sin(x)^2} - \frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{\cos(x)^2 - \sin(x)^2}$$

Bc 16:

Áp dng:

$$\cos(x)^2 - \sin(x)^2 = \cos(2x)$$

Ta có:

$$f = \frac{\cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{\cos(2x)}$$

Bc 17:

t tha s chung

Ta có:

$$f = \frac{-1 + \cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2}$$

Bc 18:

Áp dng:

$$-1 + \cos(x)^2 = -\sin(x)^2$$

Ta có:

$$f = -\frac{\sin(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2}$$

Bc 19:

Áp dng:
$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:
$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1 - \cos(x)^2}{\cos(2x)}$$

Bc 20:

Tích thành tng

Ta có:
$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{2\cos(x)^2 - 1} + \frac{\cos(x)^2}{2\cos(x)^2 - 1}$$

Bc 21:

t tha s chung

Ta có:
$$f = 2\cos(x)^2 \left(\frac{1}{2\left(2\cos(x)^2 - 1\right)} - \frac{1}{2\left(1 - 2\cos(x)^2\right)} \right) - \frac{1}{2\cos(x)^2 - 1}$$

Bc 22:

Mu chung

Ta có:
$$f = 1 \tag{2.10}$$

>

DNG CN THC

```
> f := sqrt(sin(x)^2*(1+cot(x))+cos(x)^2*(1+tan(x))) ;# -->
  Better
  Simplify_Tri(f, {0<x, x <Pi/2});simplify(f assuming 0<x, x
  <Pi/2);
  print_SOL();
```

$$f := \sqrt{\sin(x)^2\left(1 + \cot(x)\right) + \cos(x)^2\left(1 + \tan(x)\right)}$$
$$\frac{\cos(x) + \sin(x)}{\sqrt{2\sin(x)\cos(x) + 1}}$$

Bc 1:

Áp dng:
$$\tan(x) = \frac{\sin(x)}{\cos(x)}$$

Ta có:
$$f = \sqrt{\sin(x)^2\left(1 + \cot(x)\right) + \cos(x)^2\left(1 + \frac{\sin(x)}{\cos(x)}\right)}$$

Bc 2:
Áp dng:
$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:
$$f = \sqrt{\sin(x)^2\left(1 + \frac{\cos(x)}{\sin(x)}\right) + \cos(x)^2\left(1 + \frac{\sin(x)}{\cos(x)}\right)}$$

Bc 3:

Tích thành tng

Ta có:
$$f = \sqrt{\cos(x)^2 + 2\sin(x)\cos(x) + \sin(x)^2}$$

Bc 4:
Áp dng:
$$\cos(x)^2 + 2\sin(x)\cos(x) + \sin(x)^2 = (\cos(x) + \sin(x))^2$$

Ta có:
$$f = \sqrt{(\cos(x) + \sin(x))^2}$$

Bc 5:
Áp dng:
$$\left\{0 < x, x < \frac{1}{2}\,\pi\right\}$$

Ta có:
$$f = \cos(x) + \sin(x)$$

(3.1)

```
> f := sin(x)/(sin(x)-sqrt(cot(x)^2-cos(x)^2))-cos(x)^2/(2*sin(x)
  ^2-1) ; # --> Better but not good
  Simplify_Tri(f, {0<x, x <Pi/2}); simplify(f assuming 0<x, x
  <Pi/2);
  print_SOL();
```

$$f := \frac{\sin(x)}{\sin(x) - \sqrt{\cot(x)^2 - \cos(x)^2}} - \frac{\cos(x)^2}{2\sin(x)^2 - 1}$$

$$\frac{\sin(x) - 3\cos(x)^2\sin(x) + \cos(x)^2\sqrt{\dfrac{\cos(x)^4}{\sin(x)^2}}}{\sin(x) - 2\cos(x)^2\sin(x) - \sqrt{\dfrac{\cos(x)^4}{\sin(x)^2}} + 2\cos(x)^2\sqrt{\dfrac{\cos(x)^4}{\sin(x)^2}}}$$

THC HIN RÚT GN:
$$g = \sqrt{\cot(x)^2 - \cos(x)^2}$$

Bc 1:
Áp dng:

$$\cot(x) = \frac{\cos(x)}{\sin(x)}$$

Ta có:

$$f = \sqrt{\frac{\cos(x)^2}{\sin(x)^2} - \cos(x)^2}$$

Bc 2:

Qui ng

Ta có:

$$f = \sqrt{\frac{\cos(x)^2 - \cos(x)^2 \sin(x)^2}{\sin(x)^2}}$$

Bc 3:

Áp dng:

$$\left\{ 0 < x, x < \frac{1}{2}\pi \right\}$$

Ta có:

$$f = \frac{\sqrt{\cos(x)^2 - \cos(x)^2 \sin(x)^2}}{\sin(x)}$$

SUY RA:

$$f = \frac{\sin(x)}{\sin(x) - \dfrac{\sqrt{\cos(x)^2 - \cos(x)^2 \sin(x)^2}}{\sin(x)}} - \frac{\cos(x)^2}{2\sin(x)^2 - 1}$$

THC HIN RÚT GN:

$$g = \sqrt{\cos(x)^2 - \cos(x)^2 \sin(x)^2}$$

Bc 4:

t tha s chung

Ta có:

$$f = \sqrt{-\cos(x)^2 \left(-1 + \sin(x)^2\right)}$$

Bc 5:

Áp dng:

$$\left\{ 0 < x, x < \frac{1}{2}\pi \right\}$$

Ta có:

$$f = \cos(x)\sqrt{1 - \sin(x)^2}$$

SUY RA:

$$f = \frac{\sin(x)}{\sin(x) - \dfrac{\cos(x)\sqrt{1 - \sin(x)^2}}{\sin(x)}} - \frac{\cos(x)^2}{2\sin(x)^2 - 1}$$

THC HIN RÚT GN:

$$g = \sqrt{1 - \sin(x)^2}$$

Bc 6:
Áp dng:
$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:
$$f = \sqrt{\cos(x)^2}$$

Bc 7:
Áp dng:
$$\left\{ 0 < x, x < \frac{1}{2}\pi \right\}$$

Ta có:
$$f = \cos(x)$$

SUY RA:
$$f = \frac{\sin(x)}{\sin(x) - \dfrac{\cos(x)^2}{\sin(x)}} - \frac{\cos(x)^2}{2\sin(x)^2 - 1}$$

THC HIN RÚT GN:
$$f = \frac{\sin(x)}{\sin(x) - \dfrac{\cos(x)^2}{\sin(x)}} - \frac{\cos(x)^2}{2\sin(x)^2 - 1}$$

Bc 8:
Qui ng
Ta có:
$$f = -\frac{\cos(x)^2}{2\sin(x)^2 - 1} - \frac{\sin(x)^2}{\cos(x)^2 - \sin(x)^2}$$

Bc 9:
Áp dng:
$$\cos(x)^2 - \sin(x)^2 = \cos(2x)$$

Ta có:
$$f = -\frac{\cos(x)^2}{2\sin(x)^2 - 1} - \frac{\sin(x)^2}{\cos(2x)}$$

Bc 10:
Áp dng:
$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:
$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1 - \cos(x)^2}{\cos(2x)}$$

Bc 11:
Tích thành tng

Ta có:
$$f = -\frac{\cos(x)^2}{1-2\cos(x)^2} - \frac{1}{2\cos(x)^2-1} + \frac{\cos(x)^2}{2\cos(x)^2-1}$$

Bc 12:

t tha s chung

Ta có:
$$f = 2\cos(x)^2\left(\frac{1}{2\left(2\cos(x)^2-1\right)} - \frac{1}{2\left(1-2\cos(x)^2\right)}\right) - \frac{1}{2\cos(x)^2-1}$$

Bc 13:

Áp dng:
$$2\cos(x)^2 - 1 = \cos(x)^2 - \sin(x)^2$$

Ta có:
$$f = 2\cos(x)^2\left(\frac{1}{2\left(\cos(x)^2-\sin(x)^2\right)} - \frac{1}{2\left(1-2\cos(x)^2\right)}\right) - \frac{1}{\cos(x)^2-\sin(x)^2}$$

Bc 14:

Tích thành tng

Ta có:
$$f = \frac{\cos(x)^2}{\cos(x)^2-\sin(x)^2} - \frac{\cos(x)^2}{1-2\cos(x)^2} - \frac{1}{\cos(x)^2-\sin(x)^2}$$

Bc 15:

Áp dng:
$$\cos(x)^2 - \sin(x)^2 = \cos(2x)$$

Ta có:
$$f = \frac{\cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1-2\cos(x)^2} - \frac{1}{\cos(2x)}$$

Bc 16:

t tha s chung

Ta có:
$$f = \frac{-1+\cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1-2\cos(x)^2}$$

Bc 17:

Áp dng:
$$-1+\cos(x)^2 = -\sin(x)^2$$

Ta có:
$$f = -\frac{\sin(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1-2\cos(x)^2}$$

Bc 18:

Áp dng:
$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1 - \cos(x)^2}{\cos(2x)}$$

Bc 19:

Tích thành tng

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{2\cos(x)^2 - 1} + \frac{\cos(x)^2}{2\cos(x)^2 - 1}$$

Bc 20:

t tha s chung

Ta có:

$$f = 2\cos(x)^2 \left(\frac{1}{2\left(2\cos(x)^2 - 1\right)} - \frac{1}{2\left(1 - 2\cos(x)^2\right)} \right) - \frac{1}{2\cos(x)^2 - 1}$$

Bc 21:

Áp dng:

$$2\cos(x)^2 - 1 = \cos(x)^2 - \sin(x)^2$$

Ta có:

$$f = 2\cos(x)^2 \left(\frac{1}{2\left(\cos(x)^2 - \sin(x)^2\right)} - \frac{1}{2\left(1 - 2\cos(x)^2\right)} \right) - \frac{1}{\cos(x)^2 - \sin(x)^2}$$

Bc 22:

Tích thành tng

Ta có:

$$f = \frac{\cos(x)^2}{\cos(x)^2 - \sin(x)^2} - \frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{\cos(x)^2 - \sin(x)^2}$$

Bc 23:

Áp dng:

$$\cos(x)^2 - \sin(x)^2 = \cos(2x)$$

Ta có:

$$f = \frac{\cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{\cos(2x)}$$

Bc 24:

t tha s chung

Ta có:

$$f = \frac{-1 + \cos(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2}$$

Bc 25:

Áp dng:

$$-1 + \cos(x)^2 = -\sin(x)^2$$

Ta có:

$$f = -\frac{\sin(x)^2}{\cos(2x)} - \frac{\cos(x)^2}{1 - 2\cos(x)^2}$$

```
Bc 26:
```

Áp dng:

$$\sin(x)^2 = 1 - \cos(x)^2$$

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1 - \cos(x)^2}{\cos(2x)}$$

```
Bc 27:
```

Tích thành tng

Ta có:

$$f = -\frac{\cos(x)^2}{1 - 2\cos(x)^2} - \frac{1}{2\cos(x)^2 - 1} + \frac{\cos(x)^2}{2\cos(x)^2 - 1}$$

```
Bc 28:
```

t tha s chung

Ta có:

$$f = 2\cos(x)^2 \left(\frac{1}{2\left(2\cos(x)^2 - 1\right)} - \frac{1}{2\left(1 - 2\cos(x)^2\right)} \right) - \frac{1}{2\cos(x)^2 - 1}$$

```
Bc 29:
```

Mu chung

Ta có:

$$f = 1 \tag{3.2}$$