```
> with(Logic);
```

[&and, &iff, &implies, &nand, &nor, &not, &or, &xor, BooleanSimplify, Canonicalize, Contradiction, Dual, Environment, Equivalent, Export, Implies, Import, Normalize, Random, Satisfy, Tautology, TruthTable] **(1)**

```
> A := (p &implies (q &or (&not r))) &implies (p &or q &or r);
```

$$A := Logic:-\&implies(Logic:-\&implies(p, q \ \&or \ \&not(r)), (p \ \&or \ q) \ \&or \ r) \quad \textbf{(2)}$$

```
> Export(A);
```

$$(p \Rightarrow q \ \textbf{or} \ \textbf{not} \ r) \Rightarrow p \ \textbf{or} \ q \ \textbf{or} \ r \quad \textbf{(3)}$$

```
> T := TruthTable(A, [p, q, r]);
```

$$T := table([(false, false, false) = false, (false, true, true) = true, (true, true, false) = true, (true, true, true) = true, (false, false, true) = true, (true, false, true) = true, (false, true, false) = true, (true, false, false) = true]) \quad \textbf{(4)}$$

```
> S := [false, true];
  for a in S do
  for b in S do
  for c in S do
   print(a, b, c, T[a, b, c]);
  od; od; od;
```

$$S := [false, true]$$
$$false, false, false, false$$
$$false, false, true, true$$
$$false, true, false, true$$
$$false, true, true, true$$
$$true, false, false, true$$
$$true, false, true, true$$
$$true, true, false, true$$
$$true, true, true, true \quad \textbf{(5)}$$

```
> Tautology(A);
```

$$false \quad \textbf{(6)}$$

```
> Satisfy(A);
```

$$\{p = true, q = false, r = false\} \quad \textbf{(7)}$$

```
> Implies(p &implies (q &or (&not r)), p &or q &or r);
```

$$false \quad \textbf{(8)}$$

```
>
```

```
> with(Logic);
```

[&and, &iff, &implies, &nand, &nor, &not, &or, &xor, BooleanSimplify, Canonicalize, Contradiction, Dual, Environment, Equivalent, Export, Implies, Import, Normalize, Random, Satisfy, Tautology, TruthTable] (1)

```
> B := ((p &implies q) &and (r &implies s) &and ((s &or q) &implies t) &and (&not t)) &
       implies ((&not p) &and (&not r));
```

B := Logic:-&implies((Logic:-&implies(p, q) &and Logic:-&implies(r, s)) &and Logic:-&implies(s &or q, t)) &and &not(t), &not(p) &and &not(r)) (2)

```
> Export(B);
```

$$(p \Rightarrow q) \textbf{ and } (r \Rightarrow s) \textbf{ and } (s \textbf{ or } q \Rightarrow t) \textbf{ and not } t \Rightarrow \textbf{not } (p \textbf{ or } r) \tag{3}$$

```
> T := TruthTable(B, [p, q, r, s, t]);
```

T := table([(true, true, true, false, false) = true, (false, false, true, true, false) = true, (false, false, false, true, true) = true, (true, false, false, true, false) = true, (false, true, false, true, true) = true, (false, true, true, true, true) = true, (true, true, false, true, true) = true, (true, false, false, true, true) = true, (false, false, false, true, false) = true, (false, false, true, false, true) = true, (true, false, true, false, false) = true, (false, true, false, true, false) = true, (true, true, false, true, false) = true, (false, false, true, false, false) = true, (false, true, false, false, true) = true, (true, true, false, false, true) = true, (true, false, true, false, true) = true, (true, true, true, true, false) = true, (true, false, false, false, false) = true, (false, false, false, false, true) = true, (true, true, true, true, true) = true, (false, true, true, true, false) = true, (false, true, false, false, false) = true, (true, false, true, true, false) = true, (true, true, false, false, false) = true, (false, true, true, false, false) = true, (true, false, false, false, true) = true, (false, true, true, false, true) = true, (true, true, true, false, true) = true, (true, false, true, true, true) = true, (false, false, true, true, true) = true, (false, false, false, false, false) = true]) (4)

```
> S := [false, true];
  for a in S do
  for b in S do
  for c in S do
  for d in S do
  for e in S do
    print(a, b, c, d, e, T[a, b, c, d, e]);
  od; od; od; od; od;
```

S := [false, true]

false, false, false, false, false, true
false, false, false, false, true, true
false, false, false, true, false, true
false, false, false, true, true, true
false, false, true, false, false, true
false, false, true, false, true, true
false, false, true, true, false, true
false, false, true, true, true, true
false, true, false, false, false, true
false, true, false, false, true, true

false, *true*, *false*, *true*, *false*, *true*
false, *true*, *false*, *true*, *true*, *true*
false, *true*, *true*, *false*, *false*, *true*
false, *true*, *true*, *false*, *true*, *true*
false, *true*, *true*, *true*, *false*, *true*
false, *true*, *true*, *true*, *true*, *true*
true, *false*, *false*, *false*, *false*, *true*
true, *false*, *false*, *false*, *true*, *true*
true, *false*, *false*, *true*, *false*, *true*
true, *false*, *false*, *true*, *true*, *true*
true, *false*, *true*, *false*, *false*, *true*
true, *false*, *true*, *false*, *true*, *true*
true, *false*, *true*, *true*, *false*, *true*
true, *false*, *true*, *true*, *true*, *true*
true, *true*, *false*, *false*, *false*, *true*
true, *true*, *false*, *false*, *true*, *true*
true, *true*, *false*, *true*, *false*, *true*
true, *true*, *false*, *true*, *true*, *true*
true, *true*, *true*, *false*, *false*, *true*
true, *true*, *true*, *false*, *true*, *true*
true, *true*, *true*, *true*, *false*, *true*
true, *true*, *true*, *true*, *true*, *true* **(5)**

> *Tautology*(*B*);

true **(6)**

> *Satisfy*(*B*);

{*p* = *false*, *q* = *false*, *r* = *false*, *s* = *false*, *t* = *false*} **(7)**

> *Implies*((*p* **&implies** *q*) **&and** (*r* **&implies** *s*) **&and** ((*s* **&or** *q*) **&implies** *t*) **&and** (**&not** *t*), (**&not** *p*) **&and** (**&not** *r*));

true **(8)**

>