|  |  |
| --- | --- |
| sobreposição = | 1 |

Use Karnaugh maps to find the minimal form for each expression.

1. xy + xy’

x

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | x |  |
|  |  | 1 | 0 |
| y | 1 | 1 |  |
|  | 0 | 1 |  |

1. xy + x’y + x’y’

y+x’

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | x |  |
|  |  | 1 | 0 |
| y | 1 | 1 | 1 |
|  | 0 |  | 1 |

1. xy’ + x’y’

y’

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | x |  |
|  |  | 1 | 0 |
| y | 1 |  |  |
|  | 0 | 1 | 1 |

1. xyz + xyz’ + xy’z

xz+xy

x(z+y)

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | x |  |
|  |  | 1 | 0 |
| yz | 00 |  |  |
|  | 01 | 1 |  |
|  | 11 | 1 |  |
|  | 10 | 1 |  |

1. xyz’ + xy’z + xy’z’ + x’yz + x’yz’ + x’y’z

xy’+x’z+yz’

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | x |  |
|  |  | 1 | 0 |
| yz | 00 | 1 |  |
|  | 01 | 1 | 1 |
|  | 11 |  | 1 |
|  | 10 | 1 | 1 |

1. xyz + xyz’ + x’yz + x’y’z

x’z+xy

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | x |  |
|  |  | 1 | 0 |
| yz | 00 |  |  |
|  | 01 |  | 1 |
|  | 11 | 1 | 1 |
|  | 10 | 1 |  |

1. xyz + xyz’ + xy’z + xy’z’ + x’y’z

x+y’z

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | x |  |
|  |  | 1 | 0 |
| yz | 00 | 1 |  |
|  | 01 | 1 | 1 |
|  | 11 | 1 |  |
|  | 10 | 1 |  |

1. xyzt + xyz’t + xyzt’ + x’yzt + x’y’zt + x’yzt’

yz + xyt + x’zt

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | xy |  |  |  |
|  |  | 00 | 01 | 11 | 10 |
| zt | 00 |  |  |  |  |
|  | 01 |  |  | 1 |  |
|  | 11 | 1 | 1 | 1 |  |
|  | 10 |  | 1 | 1 |  |

1. xyz’t + xy’zt + xy’z’t + x’yzt + x’yz’t + x’yzt’ + x’y’z’t’

yz’t + x’yz + xy’t + x’y’z’t’

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | xy |  |  |  |
|  |  | 00 | 01 | 11 | 10 |
| zt | 00 | 1 |  |  |  |
|  | 01 |  | 1 | 1 | 1 |
|  | 11 |  | 1 |  | 1 |
|  | 10 |  | 1 |  |  |

1. xy’z’t + xy’zt’ + xy’z’t’ + x’y’zt + x’y’z’t + x’y’zt’ + x’y’z’t’

x’y’ + y’z’ + y’t’

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | xy |  |  |  |
|  |  | 00 | 01 | 11 | 10 |
| zt | 00 | 1 |  |  | 1 |
|  | 01 | 1 |  |  | 1 |
|  | 11 | 1 |  |  |  |
|  | 10 | 1 |  |  | 1 |