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Please refer to the precedence table in MSTC Question Set 3.
1.  Evaluate the value in the 'rs' variable.
int a=10;
int b=20;
int c=30;
int d=25;
int e = 25;
int f=0;
int g=1;
int rs;
################################################################################
1.1.
rs = a > b;
rs = a < b;
rs = a >= b;
rs = a <= b;
rs = a == b;
rs = a != b;
################################################################################
1.2.
rs = d > e;
rs = d < e;
rs = d >= e;
rs = d <= e;
rs = d == e;
rs = d != e;
################################################################################
1.3.
rs= f && f;
rs = f && g;
rs = g && f;
rs = g && g;
################################################################################
1.4.
rs = f || f;
rs = f || g;
rs = g || f;
rs = g || g;
################################################################################
1.5.
rs = !f;
rs = !g;
################################################################################
1.6.
rs = f && !g;
rs = f || !g;
rs = !f && g;
rs = !f || g;
################################################################################
1.7.
rs = !f && !g;
rs = !f || !g;
################################################################################
1.8.
rs = f && g || e;
rs = f && (!g | |e);
rs = f || g && e;
rs = (f || g) && e;
################################################################################
1.9.
rs = (f && g) || (!f && !g);
rs = (f || g) && (f || g);
rs = (f && !g) || (!f && g);
rs = (f || !g) && (!f || g);
################################################################################
1.10.
rs = !(a > b);
rs = !(a >= b);
rs = !(a < b);
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rs = !(a <= b);
rs = !(a == b);
rs = !(a != b);
rs = !(d == e);
rs = !(d != e);
################################################################################
1.11
How to negative compound operations?
not(p and q) = (not p) or (not q)
not(p or q) = (not p) or (not q)

rs = (a > b) && (c > d);
rs = !((a > b) && (c > d));
rs = !(a > b) || !(c > d);
rs = (a <= b) || (c <= d);

rs = (a > b) || (c > d);
rs = !((a > b) || (c > d));
rs = !(a > b) && !(c > d);
rs = (a <= b) && (c <= d);
################################################################################
1.12
Complex conditions
rs = (a > b) || (c <= d) || (d == e);
rs = (a < b) && (c > d) && (d == e);
rs = !(a < b) && !(c > d) && !(d == e);
rs = !(a < b) || !(c > d) || !(d == e);
rs = (a == b) || (b == c) || (c == d) || (d == e);
rs = (a == b) && (b == c) && (c == d) && (d == e);
################################################################################
1.13 Write conditions in words.
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e.g
[1]

rs = (a > b) || (c <= d) || (d == e);
ANS:
rs

is assigned to the evaluation of

a is greater than b
OR
c is less than or equal to d
OR
d is equal to e.

[2] rs = !(a > b)
rs
is assigned to evaluation of
not of a is greater than b
-----------------------------------------
rs = a > b;
rs = a < b;
rs = a >= b;
rs = a <= b;
rs = a == b;
rs = a != b;

rs = d > e;
rs = d < e;
rs = d >= e;
rs = d <= e;
rs = d == e;
rs = d != e;

rs= f && f;
rs = f && g;
rs = g && f;
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rs = g && g;

rs = f || f;
rs = f || g;
rs = g || f;
rs = g || g;

rs = !f;
rs = !g;

rs = f && !g;
rs = f || !g;
rs = !f && g;
rs = !f || g;

rs = !f && !g;
rs = !f || !g;

rs = f && g || e;
rs = f && (!g | |e);
rs = f || g && e;
rs = (f || g) && e;

rs = (f && g) || (!f && !g);
rs = (f || g) && (f || g);
rs = (f && !g) || (!f && g);
rs = (f || !g) && (!f || g);

rs = !(a > b);
rs = !(a >= b);
rs = !(a < b);
rs = !(a <= b);
rs = !(a == b);
rs = !(a != b);
rs = !(d == e);
rs = !(d != e);

rs = (a > b) && (c > d);
rs = !((a > b) && (c > d));
rs = !(a > b) || !(c > d);
rs = (a <= b) || (c <= d);

rs = (a > b) || (c > d);
rs = !((a > b) || (c > d));
rs = !(a > b) && !(c > d);
rs = (a <= b) && (c <= d);

rs = (a > b) || (c <= d) || (d == e);
rs = (a < b) && (c > d) && (d == e);
rs = !(a < b) && !(c > d) && !(d == e);
rs = !(a < b) || !(c > d) || !(d == e);
rs = (a == b) || (b == c) || (c == d) || (d == e);
rs = (a == b) && (b == c) && (c == d) && (d == e);
################################################################################
1.14:
Let int x be a boolean variable, Meaning that it can store only 0 or 1.
The possible values of x are
x
0
1
--------------------------------------------------------------------------------
Let x and y be two boolean variables, meaning that both x and y can store only
0 or 1. Possible combinations of truth values of x and y are as follows

x   y
0   0
0   1
1   0
1   1
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--------------------------------------------------------------------------------
Let x, y and z be three boolean variables, meaning that all three variables
x, y and z can store only 0 or 1.
x   y   z
0   0   0
0   0   1
0   1   0
0   1   1

1   0   0
1   0   1
1   1   0
1   1   1

How to evaluate a boolean expression for all possible values of boolean variables
in it?

Consider boolean expression, x && y
value of x && y in all cases

x   y   x&&y
0   0   0
0   1   0
1   0   0
1   1   1

Now write down this in words
when x is 0 and y is 0 then x&&y is 0
when x is 0 and y is 1 then x&&y is 0
when x is 1 and y is 0 then x&&y is 0
when x is 1 and y is 1 then x&&y is 1

Consider following boolean expression,
x && y || !z
Let us evaluate above expression for all possible truth values of x, y, z

C1  C2  C3  C4 = !C3    C5=C1 && C2     C6=C5 || C4
x   y   z   !z          x&&y
0   0   0   1           0               1
0   0   1   0           0               0
0   1   0   1           0               1
0   1   1   0           0               0

1   0   0   1           0               1
1   0   1   0           0               0
1   1   0   1           0               1
1   1   1   0           1               1

Now write this in words

when x is 0  y is 0   and z is 0 then x&&y ||!z is 1
when x is 0  y is 0   and z is 1 then x&&y ||!z is 1
when x is 0  y is 1   and z is 0 then x&&y ||!z is 1
when x is 0  y is 1   and z is 1 then x&&y ||!z is 0
when x is 1  y is 0   and z is 0 then x&&y ||!z is 1
when x is 1  y is 0   and z is 1 then x&&y ||!z is 0
when x is 1  y is 1   and z is 0 then x&&y ||!z is 1
when x is 1  y is 1   and z is 1 then x&&y ||!z is 1
--------------------------------------------------------------------------------
Based on above examples calculate the following:
x && y
x && !y
!x && y
!x && !y

!(x && y)
!(x && !y)
!(!x && y)
!(x && !y)
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x || y
x || !y
!x || y
!x || !y

x && yy && z
!x && y && !z
(x || y) && z
x && (y || z)

!x || y && !z
!x || !y || z
!x && (y && z) || (x && y)
(x && y) || (y && z) || (z && x)
(x || y) && (y || z) && (z || x)
################################################################################
P 1.15

Solve the problem below with following values of a, b, c, d, e, f
Also, write each of the equations in words.

Set 1:
    int a = 10, b = 20;
    int c = 300, e = 200;
    int e = 200, f = 200;

Set 2:
    int a = 10, b = 25;
    int c = 300, e = 20;
    int e = 200, f = 205;

Set 3:
    int a = 100, b = 25;
    int c = 30, e = 200;
    int e = 200, f = 205;

Set 4:
    int a = 100, b = 25;
    int c = 300, e = 20;
    int e = 200, f = 205;

(a > b) && (c < d)
(a > b) && !(c < d)
!(a > b) && (c < d)
!(a > b) && !(c < d)

!((a > b) && (c < d))
!((a > b) && !(c < d))
!(!(a > b) && (c < d))
!((a > b) && !(c < d))

(a > b) || (c < d)
(a > b) || !(c < d)
!(a > b) || (c < d)
!(a > b) || !(c < d)

(a > b) && (c < d)(c < d) && ((e == f))
!(a > b) && (c < d) && !(e == f)
((a > b) || (c < d)) && (e == f)
(a > b) && ((c < d) || (e == f))

!(a > b) || (c < d) && !(e == f)
!(a > b) || !(c < d) || (e == f)
!(a > b) && ((c < d) && (e == f)) || ((a > b) && (c < d))
((a > b) && (c < d)) || ((c < d) && (e == f)) || ((e == f) && (a > b))
((a > b) || (c < d)) && ((c < d) || (e == f)) && ((e == f) || (a > b))
```