Floating point puzzles

■ For each of the following C expressions, either:

■ Argue that it is true for all argument values, OR

■ Explain why this is not the case by giving a counter-example

■ (Taken from Randy Shepherd’s notes for CS 201)

int x = …;

float f = …;

double d = …;

Assume neither d nor f is NaN

• x == (int)(float) x

• x == (int)(double) x

• f == (float)(double) f

• d == (double)(float) d

• f == -(-f);

• 2/3 == 2/3.0

• d < 0.0 ⇒ ((d\*2) < 0.0)

• d > f ⇒ -f > -d

• d \* d >= 0.0

• (d+f)-d == f