Mixing Types & Casting

NOTE: even though we always write programs with a class header and main method, today we're only going to focus on declaring variables, so we won't be asking you to write those other segments of code. In real life, you would never evaluate statements standing alone! These expressions would normally be found in the context of code that looks similar to this:

```
public class Example{
      public static void main(String[] args){
            System.out.prinln(1 + 2 – 3);
      }
}
```

Evaluate the expressions below. Make sure to use the rules of precedence (PEMDAS), and the rules about converting mixed types. Remember that werewolf double types "infect" int types, and zombie Strings "infect" double and int types.

Exercise 1

4 / 3

3 / 4

4.0 / 3

3.0 / 4

4.0 / 3.0

1.0 + 3 / 4

1 + 3 / (2 + 2.0)

9 / 10

9.0 / 10

Exercise 2

(1 + 1 + 1 + 1 + 1 + 1 + 1) / 8

(1 + 1 + 1 + 1 + 1 + 1.0 + 1) / 8

4 % 3

(100 / 27) * 27 + 100 % 27

Exercise 3

"I like " + "zombies!"

"I have eaten " + 5 + " brains today."

"I have eaten " + 10.0 / 2 + " brains today."

"I have eaten " + 10 + 2 + " brains today."

1 + " teacher, " + 1.0 + " werewolf, and one zombie walk into a bar. Three zombies walk out!"

"What do vegan zombies eat? " + "GRAAAAAAAAAAINS!!!"

1 + 1 + 1 + 1 + 1 + "1" + 1 + 1 + 1 + 1

(1 + 1 + 1 + 1 + 1 + 1 + 1) / 8 + "oops"

(1 + 1 + 1 + 1 + 1 + 1.0 + 1) / 8 + "oops"

"What weird expression " + 3 * 2 % 5 + 1 + " is this?"

"Halloween is on October 31; the next day is November " + (31 + 1) % 31

"I didn't expect the answer to be " + ((100 / 27) * 27 + (100 % 27))

5 + "4" + 3 + 2 + 1 + " blastoff!"

" " + 0 + 0 + 0 + 0 + 0 + " SCARY"

Exercise 4

When evaluating the expressions below, remember that you can cure an infection (double -> int) or cause infection (int -> double) by asking Java to convert to the type you want. This is called "casting" (like a Unicorn casts a magical spell to reverse the infection).

Examples: *(int) 1.98*   *evaluates to*   *1*
          (double) 3 / 4   *evaluates to*   *0.75*

(int) (1.8 * 2.0)

(int) 1.8 * 2.0

(double) 3 / 4

3 / (double) 4

(1 + 1 + 1 + 1 + (double)1 + 1 + 1) / 8

(int) (1 + 1 + 1 + 1 + 1.0 + 1 + 1) / 8

"I give this worksheet " + (int) 5.1 + " out of five stars."

"integer 3 / 4 is " + (3 / 4) + " but double 3 / 4 is " + (double)3 / 4

Exercise 5

Add a cast in the blanks _____ to the following expressions to produce the desired result.

(_____) 3 / 4   evaluates to :   0.75

"I got a " + (_____) 100.99 + " on my test!"

                               evaluates to :   "I got a 100 on my test!"

(_____) 1 / (_____) 2.1

                               evaluates to :   0.5

(_____) 1.5 + (_____) 3.4 / (_____) 4.1

                               evaluates to :   1.5

(_____) 0.85 + (_____) 0.75 + (_____) 0.99

                               evaluates to :   0