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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 and the rules about converting mixed types.

Exercise 1

4 / 3=1

3 / 4=0

4.0 / 3=1.3333333333333333333333333333333333333333333333333333

3.0 / 4=.75

4.0 / 3.0=1.333333333333333333333333333333333333333333333333333

1.0 + 3 / 4= 1.0

1 + 3 / (2 + 2.0)=1.75  
1+ 3/4.0

9 / 10=0

9.0 / 10=.9

Exercise 2

(1 + 1 + 1 + 1 + 1 + 1 + 1) / 8=0

(1 + 1 + 1 + 1 + 1 + 1.0 + 1) / 8=0.875

4 % 3=1

(100 / 27) \* 27 + 100 % 27=100

100+19

Exercise 3

"I like " + "zombies!" = I like zombies!

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

"I have eaten " + 10.0 / 2 + " brains today." = I have eaten 5.0 brains today.

"I have eaten " + 10 + 2 + " brains today." = I have eaten 102 brains today

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

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

1 + 1 + 1 + 1 + 1 + "1" + 1 + 1 + 1 + 1 = 511111

(1 + 1 + 1 + 1 + 1 + 1 + 1) / 8 + "oops" = 0oops

(1 + 1 + 1 + 1 + 1 + 1.0 + 1) / 8 + "oops" = 0.875oops

"What weird expression " + 3 \* 2 % 5 + 1 + " is this?" = What weird expression 11 is this?

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

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

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

" " + 0 + 0 + 0 + 0 + 0 + " SCARY" = 00000 SCARY

Exercise 4

*When evaluating the expressions below, remember that you can force conversions that are not automatic by asking Java to convert to the type you want. This is called “casting”.*

*Examples: (int) 1.98 evaluates to 1*

*(double) 3 / 4 evaluates to 0.75*

(int) (1.8 \* 2.0) = 3

(int) 1.8 \* 2.0 = 2.0

(double) 3 / 4 = 0.75

3 / (double) 4 = 0.75

(1 + 1 + 1 + 1 + (double) 1 + 1 + 1) / 8 = 0.875

(int) (1 + 1 + 1 + 1 + 1.0 + 1 + 1) / 8 = 0

"I give this work sheet " + (int) 5.1 + " out of five stars." = I give this work sheet 5 out of five stars //jGRASP says it doesn’t work

"integer 3 / 4 is " + (3 / 4) + " but double 3 / 4 is " + (double)3 / 4 = integer ¾ is 0 but double ¾ is 0.75

Exercise 5

*Add a cast in the blanks \_\_\_\_\_\_ to the following expressions to produce the desired result.*

(double) 3 / 4 evaluates to : 0.75

"I got a " + (int) 100.99 + " on my test!"  
  
 evaluates to : "I got a 100 on my test!"

(int) 1 /  (double) 2.1

evaluates to : 0.5

(double) 1.5 + (int) 3.4 / (int) 4.1

evaluates to : 1.5

(int) 0.85 + (int) 0.75 + (int) 0.99  
  
 evaluates to : 0