

Errata

Current list of Errata for title:
Beginning Math and Physics for Game Programmers (0735713901)

Beginning Math and Physics for Game Programmers
(ISBN 0-7357-1390-1)
Corrections for the **First Printing**

Chapter 1:

These figures have missing gridlines:

1.5
1.6
1.11
1.18
1.19
1.21
1.22
1.24

>>>>>> Vertical & horizontal gridlines should be the same width. The x and y-axes should be bold with arrows on the ends. This change also affects the following figures:

1.1
1.9
1.10
1.14
1.15
1.17
1.20
1.23

Page 34-35, code example function "lineIntersect":
This code will not compile because of a syntax error (missing multiplication operand). Also, this method returns a float-pointer that points to an array that only has local scope, so you're returning a dangling pointer - another error.

The original method code is:

```
float *lineIntersect(float *L1Point, float L1Slope, float
*L2Point,
float L2Slope)
{
```

```

    float temp[2] = { 0 , 0 }; // <----- this
creates an array
on the stack, BAD!!!!!!!!!!!!!!!!!!!!!!

    //solve for our x value of the solution
    temp[0] = (L1Slope * L1Point[0] - L2Slope * L2Point[0] +
L2Point[1] -
L1Point[1] ) / (L1Slope - L2Slope);

    //use our new found value to solve for our y value
    temp[1] = L1Slope(temp[0] - L1Point[0] ) + L1Point[1] ;
//
<----- missing ' * ' between ' L1Slope '
and '
(temp[0] ...'

    return temp; //<----- this
returns a
stack-based object that is out of scope after this call!
}

```

The "corrected" code is:

```

float *lineIntersect(float *L1Point, float L1Slope, float
*L2Point,
float L2Slope)
{
    float *temp = new float[2] ; //<-----
--- this
creates an array on the heap

    //solve for our x value of the solution
    temp[0] = (L1Slope * L1Point[0] - L2Slope * L2Point[0] +
L2Point[1] -
L1Point[1] ) / (L1Slope - L2Slope);

    //use our new found value to solve for our y value
    temp[1] = L1Slope * (temp[0] - L1Point[0] ) + L1Point[1]
;

    return temp;
}

```

Chapter 2:

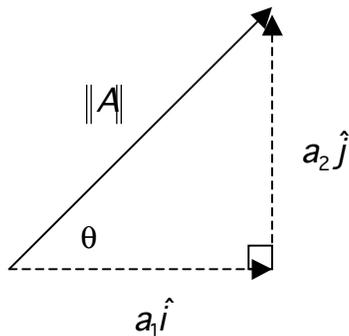
Figures w/ corrected gridlines:

2.8

2.9

Chapter 4:

New figure 4.4 (all the figures starting w/ 4.4 should be bumped up by 1, meaning 4.4 s/b 4.5, etc.). What appears as 4/15 now can be deleted.



pg 117, Inset text in gray box : "Converting from Polar to Cartesian Coordinates"

The last sentence in the inset which reads " where $||A|| \cos$ and $||A|| \sin$ " should instead read "where $a_1 = ||A|| \cos$ and $a_2 = ||A|| \sin$ ". (The numbers 1 and 2 after the lower-case 'a' should be in subscript font.)

pg 119 : There are two syntax errors in the sample code on this page. The first method name is written as

```
2Dvector_comp_PolarToCompConversion(2Dvector_polar vec)
```

There is an extra underscore character between the return type 2Dvector_comp and the method name PolarToCompConversion.

The same error occurs with the next method name:

```
2Dvector_polar_CompToPolarConversion(2Dvector_comp vec)
```

also has an extra underscore character between "2Dvector_polar" and "CompToPolarConversion".

pg 121 Self-Assessment problem #4:

The correct answer for the problem given is 10 @ 323 degrees, but the answer given at the end of the chapter is incorrectly stated as 10 @ 36.9 degrees.

pg 124, Figure 4.12 "C+D = D +C"

The graphic displayed here belongs in Figure 4.13.

The vectors should be labeled C and D in the graphic.

pg 125, Figure 4.13 "Vector C + D again"

The graphic here belongs in Figure 4.14, and the vectors in the graphic should be labeled C and D.

pg 126, Figure 4.14 "Adding corresponding components" The graphic here belongs in Figure 4.15, and the vectors in the graphic should be labeled C and D.

pg 126 : last equation on this page, " $= 7i + 6j + 2k$ ", the unit vectors i , j , and k have been typeset in a superscript font, it should be regular baseline.

pg 127 : last two equations have written the unit vectors i , j , and k in a superscript font. Should be regular baseline.

pg 134 : Figure 4.18 "Camera View" the coordinates are written as (7,3). They should be (7, 2).

pg 146, Polar coordinates versus components

Answer #4 is written D = 10 units @ 36.9 degrees. It should be D = 10 units @ 323 degrees.

Chapter 5:

pg 150

At the bottom of the page is a typedef for a struct:

```
typedef struct
{
    float x [3] [3];
} Matrix3X3;
```

It should be

```
typedef struct
{
```

```
float index [3] [3];  
} Matrix3X3;
```

page 174:

Delete the current instructions below the Self-Assessment heading. The instructions should be:

"Find the transpose for each of the following matrices."

Chapter 6

pg 225, "Concatenation", answer #2

The answer shown for B' is (-40, 30)

It should be (-40, -30). (I.e, NEGATIVE 30).

Chapter 8

pg. 253, last paragraph.

Three instances of 3600mi/hr are incorrect.

They should be 7200mi/hr. (Superscripts remain as they are on two instances.)

pg. 266, Acceleration

Answer #2 reads: -17.88m/s²

It should read: -3.58m/s²

Chapter 10

pg 291, "Equations of Motion in 2D and 3D"

These equations should be written with DELTA-R instead of DELTA-X.

Note: the DELTA is the triangle symbol.

pg 294 - 295

References to DELTA-X should be replace by DELTA-R.

pg 295, "Self-Assessment", #9

The answer shown on page 314 is: [100 25 50]

It should be [20 5 10].

Chapter 11

pg 321, Tape 11.1, "Coefficient of Friction" (cont. onto pg. 322)

The table header currently looks like this:

Surface	Static	Kinetic
Friction (μ_k)	Friction (μ_s)	

It should look be this:

Surface	Static	Kinetic
	Friction (μ_s)	Friction (μ_k)

Where "MU" is the greek character μ .

page 337

The answer for #8 shows [88.05 0]

It should be [74.7 0]

Chapter 12

pg 356, just above figure "Conservation of Mechanical Energy
(Modified)

The sentence "Adding an extra term that represents heat and sound energy to the LEFT side of the conservation law..."

Should be RIGHT side,

"Adding an extra term that represents heat and sound energy to the right side of the conservation law..."

Chapter 13

pg 378, Self-Assessment #3

"...and he gets hit with an impulse of 5000kg*ms/s."

Should be

"...and he gets hit with an impulse of 5000kg*m/s."

pg 394 "Modeling Collisions", #2.

The answer in the text is "[-13.636 12.727 29.091]"

The correct answer is [-13.636 12.727 -29.091]

i.e., the last term should have a NEGATIVE sign in front of it.