17.1: Parametrized Curves

Calculus III

College of the Atlantic

Sketch or describe the following curves:

1. $[4, -2, 5]$
2. $[4t, -2, 5]$
3. $[4t, -2t, 5t]$
4. $[\cos(t), \sin(t), 0]$
5. $[\cos(2t), \sin(2t), 0]$
6. $[\cos(20t), \sin(20t), 0]$
7. $[\cos(t), \sin(t), t]$
8. $[\cos(t), \sin(t), 2]$
9. $[\cos(t), \sin(2t), 0]$
10. $[\cos(t), \sin(3t), 0]$
11. $[t\cos(t), t\sin(t), 0]$
12. $[2t\cos(t), t\sin(t), 0]$
13. $[\cos(t), \sin(t), \cos(t)]$
14. $[\cos(t), \sin(t), \cos(3t)]$
15. $[\sin(t) + 2\sin(4t), \cos(t) - 2\cos(4t), -\sin(3t)]$
16. $[16\sin^3(t), 13\cos(t) - 5\cos(2t) - 2\cos(3t) - \cos(4), 0]$.

Write parametrized curves for the following:

1. A line parallel to $2\hat{i} + 3\hat{j} + 4\hat{k}$ and through the point $(1, 5, 7)$.
2. A line from $(0, 0)$ to $(0, 4)$
3. A quarter circle with radius 2 in the first quadrant, moving counter-clockwise.
4. A line from $(4, 0)$ to $(0, 4)$.