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```
function bool = stopSim(t,x,wp,tStop)
```

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```
% Trevor Burgoyne
% 15 Dec 2021
%
% Usage: bool = stopSim(t,x,wp)
% Return 'true' if simulation has reached the waypoint
% or has timed out (30 sec).
%
% Inputs:
% t = current timestamp
% x = state vector
% wp = current waypoint
%
% Outputs:
% bool = returns 1 if simulation should stop; else 0
```

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## Demo

---

```
if nargin <= 0
    x = [0; 0; 0; 2; 3; 4; 0];
    t = 10;
    wp = [2.5; 3; 4];
    tStop = 30;
end
```

---

## Stop function

---

Current position

```
xe = x(4);
yn = x(5);
h = x(6);

% Define waypoint position [x,y,h]
xe_wp = wp(1);
yn_wp = wp(2);
h_wp = wp(3);

% Tolerance
tol = 3; % m

dist = sqrt((xe-xe_wp)^2 + (yn-yn_wp)^2 + (h-h_wp)^2);

if (dist <= tol)
    disp('hit waypoint!')
    bool = 1;
else if (t > tStop)
    disp('took too long, timed out!')
```

```
        bool = 1;  
    else  
        bool = 0;  
    end  
end
```

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