

## Activity 11 Parametric and vector equations

1. No, the ships do not collide.
2. Answers will vary depending on setup of window.
3.  $\overline{AB} = (18 - 15t)\mathbf{i} + (2t + 3)\mathbf{j}$  km
4. Minimum separation distance is  $\approx 595$  m. So, no, ships do not come within 500 m of each other.

Edit Action Interactive  
 [-3+12t, 7+9t] → OA      [12\*t-3, 9\*t+7]  
 [15-3t, 11t+4] → OB      [-3\*t+15, 11\*t+4]  
 -OA+OB → AB      [-15\*t+18, 2\*t-3]  
 norm(AB)       $\sqrt{229 \cdot t^2 - 552 \cdot t + 333}$   
 fmin(ans, t)      {MinValue =  $\frac{9 \cdot \sqrt{229}}{229}$ , t =  $\frac{276}{229}$ }  
 ans      {MinValue = 0.5947367404, t = 1.205240175}  
 □  
 Alg    Standard    Real    Deg

*By switching between Decimal and Standard, we can obtain both exact answers and decimal approximations.*