

29. The phasor diagram is shown below:  $y_{1m}$  and  $y_{2m}$  represent the original waves and  $y_m$  represents the resultant wave. The phasors corresponding to the two constituent waves make an angle of  $90^\circ$  with each other, so the triangle is a right triangle. The Pythagorean theorem gives  $y_m^2 = y_{1m}^2 + y_{2m}^2 = (3.0 \text{ cm})^2 + (4.0 \text{ cm})^2 = 25 \text{ cm}^2$ . Thus  $y_m = 5.0 \text{ cm}$ .

