

27. The spaceship is moving away from Earth, so the frequency received is given directly by Eq. 38-30. Thus,

$$f = f_0 \sqrt{\frac{1 - \beta}{1 + \beta}} = (100 \text{ MHz}) \sqrt{\frac{1 - 0.9000}{1 + 0.9000}} = 22.9 \text{ MHz} .$$