

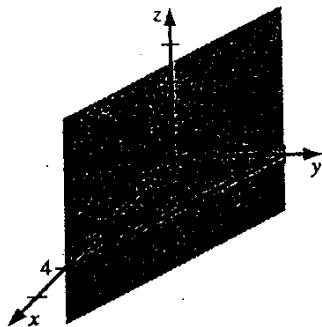
Additional Review Problem Answers

Sections 12-5 and 12-6

1. C 2. C 3. A 4. B 5. $(\frac{11}{2}, -\frac{1}{2}, 8)$ 6. a. $(4, -3, 12)$ b. 13
 c. 7 7. $(x-1)^2 + (y+1)^2 + (z-4)^2 = 121$; $(3-1)^2 + (5+1)^2 + (-5-4)^2 = 4 + 36 + 81 = 121$ 8. $(x, y, z) = (5, -2, 4) + t(1, 3, -3)$; $x = 5 + t, y = -2 + 3t, z = 4 - 3t$

EXERCISES

9.



the z-axis 10. $x + 5y - 2z = 4$

11. The graphs are parallel planes if $s \neq t$ since each is perpendicular to the vector (a, b, c) . 12. $(-3, -4, 8)$; 11

13. 45.6° 14. a. Sample answers: $(3, -4, -2), (2, -3, 3)$

b. $(x, y, z) = (-1, 0, 7) + t(-1, 1, 5)$ 15. Answers will vary, a sample answer is given.

$AB = CD = \sqrt{21}$ and $BC =$

$AD = 7$; opposite sides are equal in length, so the quadrilateral is a parallelogram. 16. a. $x + 4y + 3z = 13$ b. $6 + 4 \cdot 1 + 3 \cdot 1 = 13$

c. $PA = \sqrt{66} = PB$ 17. $9x - 2y - 6z = -88$ 18. Answers will vary, a sample answer is given. Show that $\mathbf{u} = k\mathbf{v}$ for some scalar k

or use the formula $\cos \theta = \frac{\mathbf{u} \cdot \mathbf{v}}{|\mathbf{u}||\mathbf{v}|}$ to show that $\cos \theta = \pm 1$. Choices and reasons will vary.