

8. Given that  $a \perp b$ ,  $b \perp c$ , and  $c \parallel d$ , then  $a \parallel c$  because two lines perpendicular to the same line are parallel. Then  $a \parallel d$  because lines parallel to the same line are parallel to each other.
12. All rungs are perpendicular to both sides of the ladder, and parallel to each other.
20.  $a \perp d$ .  $a \parallel c$  because two lines perpendicular to the same line are parallel to each other, then since  $c \perp d$ ,  $a$  must also be perpendicular to  $d$ .
24.  $a \parallel d$ .  $a \perp c$  because two lines perpendicular to the same line are parallel to each other, then since  $c \perp d$ ,  $a$  must also be parallel to  $d$  for the same reason.
28. Using the distance formula: The shortest distance is to F.

$$\sqrt{(5 - -1)^2 + (2 - 3)^2} = \sqrt{36 + 1} = 6.1$$

$$\sqrt{(5 - 0)^2 + (2 - -2)^2} = \sqrt{25 + 16} = 6.5$$

$$\sqrt{(5 - 4)^2 + (2 - -5)^2} = \sqrt{1 + 49} = 7.1$$

$$\sqrt{(5 - 4)^2 + (2 - 10)^2} = \sqrt{1 + 64} = 8.1$$