8. The vertical and horizontal components are independent of each other. The vertical component is uniform accelerated motion and, like question 7, because the initial velocity remains zero, the time remains the same.

C is the answer.

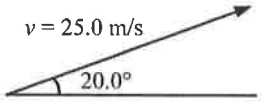
9. The horizontal component of the motion is uniform motion (constant velocity) and the vertical component of the motion is uniform accelerated motion. Therefore, the horizontal component of the velocity remains constant, but the vertical component of the velocity depends on the angle.

A is the answer.

10. Once the object leaves the hand, it is at the mercy of gravity, and the acceleration due to gravity remains constant throughout its motion up and down; but the velocity decreases as it travels up, coming to a stop at its maximum displacement.

B is the answer.

11.



$$\vec{v}_x = v\cos\theta$$
$$= (25.0\text{ m/s})(\cos 20.0°)$$
$$= 23.5\text{ m/s}$$
$$\vec{v}_y = v\sin\theta$$
$$= (25.0\text{ m/s})(\sin 20.0°)$$
$$= 8.55\text{ m/s}$$

Find t from the magnitude of the horizontal component of velocity:

$$v_x = \frac{d_x}{t}$$
$$t = \frac{d_x}{v_x}$$
$$= \frac{25.0\text{ m}}{23.5\text{ m/s}}$$
$$= 1.06\text{ s}$$

$\vec{v}_{yi}$	$\vec{v}_{yf}$	$\vec{a}$	$\vec{d}$	t
8.55 m/s		-9.81 m/s^2	?	1.06 s

$$\vec{d} = \vec{v}_{yi}t + \frac{1}{2}\vec{a}t^2$$
$$= (8.55\text{ m/s})(1.06\text{ s}) + \frac{1}{2}(-9.81\text{ m/s}^2)(1.06\text{ s})^2$$
$$= 3.55\text{ m up}$$

At 3.55 m height above the ground, the object will hit the building.

A is the answer.

12. We are talking about uniform accelerated motion; and the slope of a position-time graph represents the velocity.

C is the answer.

13. The horizontal component of a projectile represents uniform motion (constant velocity).

A is the answer.

14. The vertical acceleration of a projectile is uniform.

A is the answer.

15. We are only concerned about the vertical component in the projectile (baseball), and because the initial vertical velocity of this projectile is zero, it will hit the ground at the same time as it would if it were dropped.

C is the answer.

