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Q1.
(b)

Q2.
(b)

Q3.
(a)
$$F_x = 5 \times \frac{4}{5} = 4N$$
$$\Delta p = F\Delta t$$
$$= 4 \times 3$$
$$= 12N/s$$

(b)
$$F_x = 5 \times \cos 30 = 4.33N$$
$$\Delta p = F\Delta t$$
$$= 4.33 \times 3$$
$$= 12.99N/s$$

(c)
$$\Delta p = F\Delta t$$
$$= 20 \times 1 \times \frac{1}{2}$$
$$= 10N/s$$
$$\Delta p = F\Delta t$$
$$= 20 \times 2$$
$$= 40N/s$$
$$\Delta p = 40 + 10 = 50N/s$$

Q4.
(b)
$$p = mv$$
$$= 10 \times 6 = 60 kg \cdot m/s$$

(b)
$$p = mv$$
$$= 10 \times 2 = 20 kg \cdot m/s$$

(c)
$$p = mv$$
$$= 10 \times 3 = 30 kg \cdot m/s$$

Q5.
$$(v_y)_1 = 25 \times \cos 45 = 17.68 m/s$$
$$p = mv$$
$$= 17.68 \times 0.5 = 8.84 kg \cdot m/s$$

$$(v_y)_2 = 10 \times \sin 30 = 5 m/s$$
$$p = mv$$
$$= 5 \times 0.5 = 2.5 kg \cdot m/s$$

$$\Delta p = 2.5 - 8.84 = -6.34 kg \cdot m/s$$