

Homework due 11/08

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Ok to post

Sec. 15.6

1) a) u -axis: $y = \frac{x}{2}$, v -axis: y -axis

b) $(0,0)$ $(0,7)$ $(10,12)$ $(10,5)$

c) $(2,3)$ $(10,8)$

d) $(0,1)$ $(2,1)$ $(2,2)$

3) No, it's one to one when $u \geq 0$

a) u -axis: positive x -axis, v -axis: y -axis

b) $[0,1] \times [-1,1]$

c) $y = \sqrt{x}$, $0 \leq x \leq 1$

d) $x = 0..1$, $y = \sqrt{x}..1$

13) $J = 3(-2) - 4 \cdot 1 = -10$

15) $J = \sin(\pi) \cdot \sin(\pi) - 1 \cos(\pi) \cdot 1 = 1$

$$17) J = \cos\left(\frac{\pi}{6}\right) \cdot 4\cos\left(\frac{\pi}{6}\right) + 4\sin\left(\frac{\pi}{6}\right) \cdot \sin\left(\frac{\pi}{6}\right) = 4$$

$$19) (4u+2v, u+3v)$$

$$23) J = 3(-2) - 1 \cdot 1 = -7$$

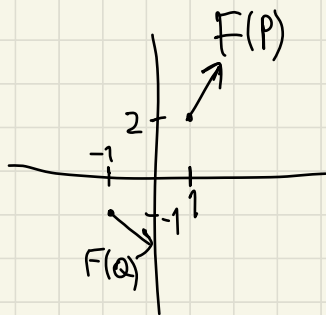
$$a) \int_0^5 \int_0^3 7 \, dx \, dy = 105$$

$$b) \int_1^7 \int_2^5 7 \, dx \, dy = 126$$

Sec 16.1

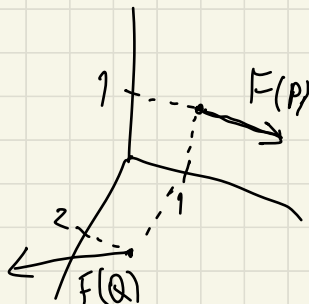
$$1) F(1,2) = \langle 1, 1 \rangle$$

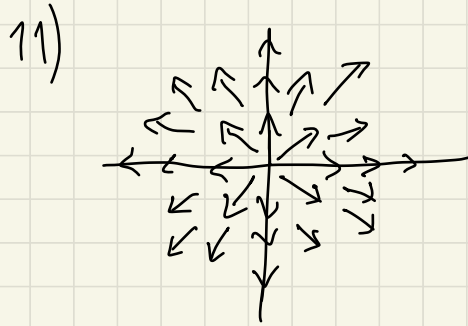
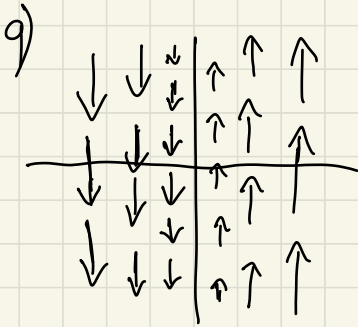
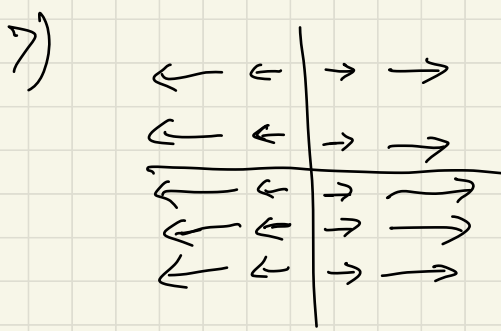
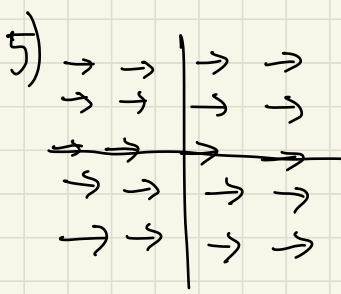
$$F(-1,-1) = \langle 1, -1 \rangle$$



$$3) F(0,1,1) = \langle 0, 1, 0 \rangle$$

$$F(2,1,0) = \langle 2, 0, 2 \rangle$$





17) C

$$23) \operatorname{div}(F) = y + 2$$

$$\operatorname{curl}(F) = (2y - y, 0 - (-3x^2), 0 - x) = (y, 3x^2, -x)$$

$$25) \operatorname{div}(F) = 1 - 4zx - x + 2zx^2$$

$$\operatorname{curl}(F) = (0 - 1, -2x^2 - 2xz^2, -y - 0) = (-1, -2x^2 - 2xz^2, -y)$$

$$27) \operatorname{div}(F) = 0$$

$$\operatorname{curl}(F) = (1 - 3z^2, 1 - 2x, 1 + 2y)$$