

۱۹، ۷۵
افزین

نام و نام خانوادگی: شماره ثبت: کلاس: نام درس: پاسخنامه تشریحی تکلیف شماره ۱.۸	
الف) $\left \begin{matrix} 1 & 5 \\ 2 & -1 \end{matrix} \right \rightarrow m = \frac{2 - (-1)}{1 - 5} = -\frac{3}{4} \rightarrow y = -\frac{3}{4}x + 1.75$ ✓ ب) $2y + 4x = 1 \rightarrow y = -\frac{1}{2}x + \frac{1}{4} \rightarrow m = -\frac{1}{2} \rightarrow y = -\frac{1}{2}x + \frac{1}{4}$ ✓ 2) $3y = -x + 1 \rightsquigarrow y = -\frac{1}{3}x + \frac{1}{3} \rightsquigarrow m = -\frac{1}{3} \rightarrow y = -\frac{1}{3}x + \frac{1}{3}$ ✓ 3) $\tan \frac{\pi}{4} = \sqrt{2} \rightarrow m = \sqrt{2} \rightarrow y = \sqrt{2}x - 4\sqrt{2} + 2$ ✓	۱ ۱۷۵
الف) $\left \begin{matrix} 1 & -1 \\ 2 & 1 \end{matrix} \right$ $d = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$ $\rightarrow \sqrt{3^2 + 4^2} = 5$ ✓ ب) $\left \begin{matrix} 1 & 3 \\ 2 & 4 \end{matrix} \right$ $d = \frac{ ax_0 + by_0 + c }{\sqrt{a^2 + b^2}}$ $\rightarrow d = \frac{ 4 + 12 - 2 }{5} = 3$ ✓	۲ ۲
$2x + 4y = 1$ $2x + 3y = 4 \rightarrow 2x + 4y = 4$ الف) $2x + 4y = \frac{12 + 1}{2} \rightarrow 2x + 4y = 1$ ✓ ب) $\frac{ c_1 - c_2 }{\sqrt{a^2 + b^2}} \rightarrow \frac{3}{\sqrt{20}} = \frac{3}{2\sqrt{5}} = \frac{3\sqrt{5}}{10}$ ✓	۳ ۲
$2x - 2y = 1$ $2x + 2y = 3$ $\rightarrow \frac{ 2x - 2y - 1 }{\sqrt{2^2 + (-2)^2}} = \frac{ 2x + 2y - 3 }{\sqrt{2^2 + 2^2}}$ $\begin{cases} 2x - 2y - 1 = 2x + 2y - 3 \rightarrow x - 5y = -1 \\ 2x - 2y - 1 = -2x - 2y + 3 \rightarrow 4x = 4 \rightarrow x = 1 \end{cases}$ ✓	۴ ۲
$y = -\frac{3}{4}x + 2$ $y = \frac{1}{2}x + 5$ $\tan \theta = \left \frac{m - m'}{1 + mm'} \right$ $\rightarrow \tan \theta = \left \frac{\frac{5}{2} - (-\frac{3}{4})}{1 - (-\frac{15}{8})} \right \rightarrow \theta = \arctan \frac{13}{13} = 45^\circ$ ✓	۵ ۲

$$B \begin{vmatrix} -5 \\ 4 \end{vmatrix} \quad A \begin{vmatrix} 3 \\ -2 \end{vmatrix}$$

الف) $d = \sqrt{1^2 + 4^2} = 1. \checkmark$

ب) $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \rightarrow \frac{-2}{2}, \frac{2}{2} \rightarrow (-1, 1) \checkmark$

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الف) $x = \frac{-10 - 2 + 3}{3} = -3$, $y = \frac{-13 + 3 + 1}{3} = -3 \rightarrow \begin{matrix} \text{مركز} \\ \text{ثقل} \end{matrix} = \begin{pmatrix} -3 \\ -3 \end{pmatrix} \checkmark$

ب) $\begin{vmatrix} -10 & -2 & 3 \\ -13 & 3 & 1 \\ 1 & 1 & 1 \end{vmatrix} = -30 - 39 - 2 - 9 + 10 - 24 = -94 \rightarrow 94$
 $S = \frac{94}{2} = 47 \checkmark$

(2)

✓

الف) $y' = -y \rightarrow y = -\frac{r_n + 1}{r_n - r}$ ✓

ب) $x' = -x \rightarrow y = \frac{-r_n + 1}{-r_n - r}$ ✓

2.) $\begin{matrix} x' \geq y \\ y' = x \end{matrix} \rightarrow x = \frac{ry + 1}{ry - r} \rightarrow y = -\frac{-rx - 1}{rx - r} \rightsquigarrow y = \frac{rx + 1}{rx - r}$ ✓

3.) $\begin{matrix} x' \geq -y \\ y' = -x \end{matrix} \rightarrow -x = \frac{-ry + 1}{-ry - r} \rightarrow \frac{-ry + 1}{ry + r} = x \rightsquigarrow y = -\frac{rx - 1}{rx + r} \rightsquigarrow y = \frac{-rx + 1}{rx + r}$ ✓

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$$\textcircled{a)} \quad \begin{aligned} x' &= x - r \rightarrow x = x' + r \\ y' &= y + r \rightarrow y = y' - r \end{aligned}$$

$$\rightarrow \frac{r(x' + r) + 1}{x' + r - r} = y' - r$$

$$\frac{rx' + r}{x' - 1} + r = y' \rightarrow y' = \frac{rx' + r}{x' - 1} + r \quad \checkmark$$

$$\textcircled{b)} \quad \begin{aligned} x' &= x - r \rightarrow x = x' + r \\ y' &= y - r \rightarrow y = y' + r \end{aligned}$$

$$\frac{rx' + r}{x' + r - r} = y' + r \rightarrow \frac{rx' + r}{x'} = y' + r$$

$$\frac{r}{x'} = y' \quad \checkmark$$

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$$\begin{cases} rx + ry = r \\ x - ay = 1 \end{cases} \rightarrow \begin{cases} rx + ry = 1 \\ x - ay = 1 \end{cases}$$

$$\rightarrow \begin{cases} rx = 1 - ry \\ x = \frac{1 - ry}{r} \end{cases}$$

$$\rightarrow \begin{cases} rx = 1 \\ x = \frac{1}{r} \end{cases} \quad \checkmark$$

$$ay = \frac{-1}{r} \quad \checkmark$$

$$\begin{cases} rx + ry = r \\ x - ay = 1 \end{cases} \quad \begin{vmatrix} r & r \\ 1 & -a \end{vmatrix} = -1a \quad \checkmark$$

$$\begin{vmatrix} r & r \\ -a & 1 \end{vmatrix} = 1r \quad \checkmark$$

$$\begin{bmatrix} r & r \\ 1 & 1 \end{bmatrix} = 1 \quad \checkmark$$

$$x = -\frac{1r}{-1a} = \frac{1r}{1a} \quad y = \frac{1}{-1a} = -\frac{1}{1a}$$

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1.