

|                                                                                                          |                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                    |   |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---|
| $\frac{x^2 - 9x}{x^2 - x} \geq 0$ $x(x-1)(x+1)$ $x^2 - x \neq 0$ $x \neq \sqrt{x}$                       | <p>(الف) <math>\frac{x^2 - x}{x^2 - x} \geq 0</math></p> <p><math>x^2 - x \neq 0</math></p> <p><math>x^2 \neq x</math></p> <p><math>x \neq \sqrt{x}</math></p>                                                                                                                                                                                      | <p>(ب)</p>                                                                                                                                         | ۱ |
| $ x+1  > 0$ $x >  x $ $\pm x > x$                                                                        | <p>(الف) <math> x  &gt; 0</math></p> <p><math> x  &gt; 0</math></p> <p><math>x &gt; 0</math> <math>(0, +\infty)</math></p>                                                                                                                                                                                                                          | <p>(ب)</p>                                                                                                                                         | ۲ |
| $x - [x] \geq 0$ $x > [x]$ $(-\infty, 1)$                                                                | <p>(الف) <math>x - [x] \geq 0</math></p> <p><math>x \geq [x]</math></p> <p><math>(-\infty, 1)</math></p>                                                                                                                                                                                                                                            | <p>(ب)</p>                                                                                                                                         | ۳ |
| $[x - \frac{1}{x}] + [-x + \frac{1}{x}] \geq 0$                                                          | <p>(الف) <math>[x - \frac{1}{x}] + [-x + \frac{1}{x}] \geq 0</math></p> <p><math>[x + \frac{1}{x}] = [x - \frac{1}{x}] + 1</math></p> <p><math>x(x - \frac{1}{x}) + 1 \geq 0</math> <math>[\frac{1}{x}, +\infty)</math></p> <p><math>[x - \frac{1}{x}] \geq 0</math></p> <p><math>x - \frac{1}{x} \geq 0</math> <math>x \geq \frac{1}{x}</math></p> | <p>(ب)</p>                                                                                                                                         | ۴ |
| $\sin^2 x - 1 \neq 0$ $\sin^2 x \neq 1$ $\sin^2 x \neq \frac{1}{4}$ $\sin x \neq \pm \frac{\sqrt{1}}{2}$ | <p>(الف) <math>\sin x - 1 \neq 0</math></p> <p><math>\sin x \neq 1</math></p> <p><math>R = \{\frac{\pi}{2} + 2k\pi\}</math></p>                                                                                                                                                                                                                     | <p>(ب)</p> <p><math>R = \{\frac{\pi}{2} + 2k\pi\}</math></p>  | ۵ |

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| $\{r, r\pi\}$                                                                                                                                                                                                        | $\cos x - 1 \geq 0$<br>$\cos x \geq 1$<br>                                  | $r \sin x - 1 \geq 0$ (ج1)<br>$\sin x \geq \frac{1}{r}$<br>$\left\{ \frac{\pi}{r} + r k \pi, \frac{2\pi}{r} + r k \pi \right\}$ | 6  |
| $x^r + r x + 1 \geq -1$<br>$x^r + r x + 1 \leq 1$<br>$x^r + r x - r \geq 0$<br>$(x+1)(x+r) \geq 0$<br>$x \leq -r$ $x \geq -1$                                                                                        | $x^r + r x + 1 \leq 1$<br>$x^r + r x \leq 0$<br>$x(x+r) \leq 0$<br>$-r \leq 0 \leq 0$<br>$[-r, -r] \cup [-1, 0]$                                             | $-1 \leq  x  - r \leq 1$<br>$r \leq  x  \leq r$<br>$\pm r \leq x \leq \pm r$<br>$[-r, r] \cup \{r, r\}$                         | 7  |
| $x(x^r - 1) > 0$<br>$x(x-1)(x+1) > 0$<br>$x = 0$<br>$x = 1$<br>$x = -1$<br>$(-1, 0) \cup (1, +\infty)$                                                                                                               | $x - r > 0$<br>$x > r$<br>$r = \log_{dr} (x-r) \leq r$<br>$x - r \leq 9$<br>$x \leq 11$                                                                      | $x - r > 0$ (ج1)<br>$x > r$<br>$r = \log_{dr} (x-r) \leq r$<br>$x - r \leq 9$<br>$x \leq 11$ (2, 11]                            | 8  |
| 1) $r^x + 1 \neq 0$ $r^x \neq -1$ $\log_r^{-1} = x$<br>2) $r^x - 1 \neq 0$ $r^x \neq 1$ $x \neq 0$ $R - \{0\}$<br>3) $r^x - r \neq 0$ $r^x \neq r$ $\log_r^r = x$<br>4) $r - r^x \neq 0$ $r^x \neq r$ $\log_r^r = x$ |                                                                                                                                                              |                                                                                                                                 | 9  |
| $\frac{rx - r}{rx - a} = w$<br>$rx - r = w(rx - a)$<br>$rx - r = rwx - aw$<br>$x(r - rw) = r - aw$                                                                                                                   | $rx - a \neq 0$<br>$x \neq \frac{a}{r}$<br>$x = \frac{r - aw}{r - rw} \leq \frac{aw - r}{rw - r}$<br>$\left\{ \frac{aw - r}{rw - r} \mid w \in W_1 \right\}$ | $rx + 1 = w$ (ج1)<br>$rx = w - 1$<br>$x = \frac{w - 1}{r}$<br>$\left\{ \frac{w - 1}{r} \mid w \in W_1 \right\}$                 | 10 |