

# Inequalities

# Easy

Find the value of  $y$

$$4y > 24$$

a)  $y > 6$

b)  $y > 7$

c)  $y > 4$

d)  $y > 2$

Find the value of  $y$

$$2(y-3) + 7 < 21$$

a)  $Y < 10$

b)  $Y > 10$

c)  $Y > 11$

d)  $Y < 11$

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$$4y > 24$$

- a)  $y > 6$
- b)  $y > 7$
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Find the value of  $y$

$$2(y-3) + 7 < 21$$

- a)  $y < 10$
- b)  $y > 10$
- c)  $y > 11$
- d)  $y < 11$

# Medium

If  $X^2 < X$ , which of the following must be true?

- a)  $x < -1$
- b)  $-1 < x < 0$
- c)  $0 < x < 1$
- d)  $x > 1$

If  $3^{3x-2} > 1$ , which of the following must be true?

- (1)  $x > 1$
- (2)  $x > 3$
- (3)  $x > 2/3$
- (4)  $x > 1/3$



If  $x^2 < x$ , which of the following must be true?

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- (2)  $x > 3$
- (3)  $x > 2/3$
- (4)  $x > 1/3$

If  $\sqrt{9x - x^2} > 0$ , which of the following must be true?

- (1)  $x > 9$
- (2)  $0 < x < 9$
- (3)  $x < 0$
- (4)  $x < 2$

If  $\sqrt{x^2 - 6x - 40} > 0$ , which of the following must be true?

1.  $-10 < x < 4$
2.  $-4 < x < 10$
3.  $x$  does not lie between the closed interval  $-10$  and  $4$
4.  $x$  does not lie between the open interval  $-4$  and  $10$

If  $\sqrt{9x - x^2}$ , which of the following must be true?

- (1)  $x > 9$
- ✓ (2)  $0 < x < 9$
- (3)  $x < 0$
- (4)  $x < 2$

If  $\sqrt{x^2 - 6x - 40}$ , which of the following must be true?

- 1.  $-10 < x < 4$
- 2.  $-4 < x < 10$
- 3.  $x$  does not lie between the closed interval  $-10$  and  $4$
- ✓ 4.  $x$  does not lie between the open interval  $-4$  and  $10$

# Tough

Find the range of:

$$(x + 4)(x - 2)(x - 7) > 0$$

- a)  $(-4, 2)$  and  $(7, \infty)$
- b)  $(-4, 0)$  and  $(7, \infty)$
- c)  $(-4, 2)$  and  $(7, 9)$
- d)  $(-4, -2)$  and  $(7, 11)$

Find the range of:

$$(x + 4)(x - 2)(x - 7) > 0$$

- ✓ a)  $(-4, 2)$  and  $(7, \infty)$
- b)  $(-4, 0)$  and  $(7, \infty)$
- c)  $(-4, 2)$  and  $(7, 9)$
- d)  $(-4, -2)$  and  $(7, 11)$

Find the range of:

$$| 2x + 1 | < 3x + 2$$

a)  $x > -3/5$

b)  $x < -3/5$

c)  $x > 3/5$

d)  $x < 3/5$



Find the range of:

$$| 2x + 1 | < 3x + 2$$

a)  $x > -3/5$

b)  $x < -3/5$

✓ c)  $x > 3/5$

d)  $x < 3/5$

Find the range of:

$$(z^2 + z + 1)^{z+2} < 1$$

- a)  $(-\infty, -2)$  and  $(-1, 0)$
- b)  $(\infty, -2)$  and  $(-1, 5)$
- c)  $(-\infty, 2)$  and  $(-1, 0)$
- d)  $(-\infty, 10)$  and  $(-11, 10)$

Find the range of:

$$(z^2 + z + 1)^{z+2} < 1$$

- ✓ a)  $(-\infty, -2)$  and  $(-1, 0)$
- b)  $(\infty, -2)$  and  $(-1, 5)$
- c)  $(-\infty, 2)$  and  $(-1, 0)$
- d)  $(-\infty, 10)$  and  $(-11, 10)$