

## Algebra 3 Review Worksheet

1. Decide whether the given equation defines  $y$  to be a function of  $x$ . For each, find the domain.

a)  $y = x^{\frac{1}{3}}$

d)  $y^2 = |3x+1|$

b)  $y = |2x-7|$

e)  $y = \sqrt{\frac{x^2 - x - 6}{x^2 - 64}}$

c)  $y = \frac{x^2 - 4}{x - 2}$

f)  $y = \frac{x}{\sqrt{x^2 - x - 12}}$

2.  $f(x) = 3x^2 - 2x + 7$

a) Find  $f(-2)$

b) Find  $3f(4)$

c) Find  $3f(x-1) - f(2)$

3.  $\triangle ABC$  has vertices  $A(-2, 9)$ ,  $B(4, 1)$  and  $C(2, -3)$ . Find the following

a) Equation of  $\overline{AB}$

b) Equation of median to  $\overline{BC}$

c) Equation of perpendicular bisector of  $\overline{AC}$

4. Graph the following. Label the vertex.

a)  $y = |2x+1| - 3$

b)  $y = -|2x-3| + 2$

c)  $y = \begin{cases} x & \text{if } 0 \leq x < 1 \\ x-1 & \text{if } 1 \leq x < 2 \\ x-2 & \text{if } 2 \leq x < 3 \\ x-3 & \text{if } 3 \leq x < 4 \end{cases}$

d)  $y = -2[x+1]$

e)  $y = 3\left[\frac{1}{2}x\right] - 1$

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Answers:

1.

a) Yes IIR

b) Yes IIR

c) Yes  $x \neq 2$

d) No

e)  $x < -8$  or  $x > 8$  or  $-2 \leq x \leq 3$

f)  $x > 4$  or  $x < -3$

2.

a) 23

b) 141

c)  $9x^2 - 24x + 21$

3.

a)  $y = -4/3 x + 19/3$

b)  $y = -2x + 5$

c)  $y = 1/3x - 1/3$

4.

a) Vertex  $(-1/2, -3)$

b) Vertex  $(3/2, 2)$

c,d,e Look on solved sheets