NAME_____ DATE_____

Due TOMORROW ☺

Functions

★ Show your work on a separate paper & then write your answers on this worksheet

Give the domain of each function.

7. $a(x) = 5x - 1$ {All Reals}

8. $k(x) = |x|$ All Reals

9. $c(x) = \frac{5}{x-3}$ {All Reals except 3}

10. $m(x) = \sqrt{3x}$ $\{x : x \geq 0\}$

11. $e(x) = \frac{3x}{(x-1)(x-2)}$ {All Reals except 1, 2}

12. $b(x) = \sqrt{2x+6}$ $\{x : x \geq -3\}$

$2x+6 \geq 0$
$2x \geq -6$
$x \geq -3$

Find an equation of the linear function with the following slope and function value.

1. $m = 3, f(1) = 5$ $f(x) = 3x + 2$

2. $m = 5, g(0) = 0$ $g(x) = 5x$

3. $m = 0, h(3) = 7$ $h(x) = 7$

4. $m = \frac{1}{2}, r(4) = 0$ $r(x) = \frac{1}{2}x - 2$

5. $m = \frac{3}{5}, s(5) = 4$ $s(x) = \frac{3}{5}x + 1$

6. $m = \frac{2}{3}, t(1) = 1$ $t(x) = \frac{2}{3}x + \frac{1}{3}$

7. $m = -\frac{1}{4}, a(4) = 0$ $a(x) = -\frac{1}{4}x + 1$

8. $m = -\frac{2}{3}, f(-6) = -1$ $f(x) = -\frac{2}{3}x - 5$

Find the third value, given two values for each linear function.

Hint: find f(x) eqtn then plug in

9. $f(1) = -1; f(3) = 3; f(-1) =$? -5

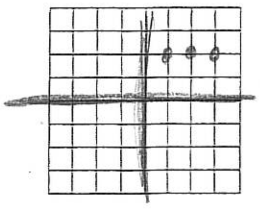
10. $g(-1) = 7; g(2) = 1; g(-2) =$? 9

11. $h(0) = -1; h(5) = 1; h(-5) =$? -3

12. $r(3) = 9; r(\frac{1}{2}) = 9; r(-1) =$? 9

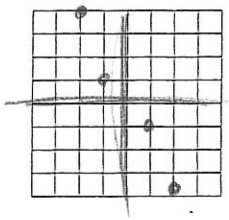
Graph each relation and determine whether or not it is a function.

7. {(1, 2), (2, 2), (3, 2)}



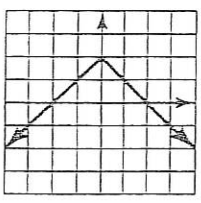
Function (passes VLT)

8. {(−2, 4), (−1, 1), (1, −1), (2, −4)}

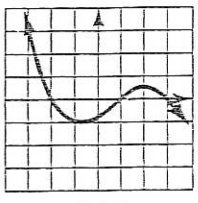


Function (passes VLT)

Is the relation a function?

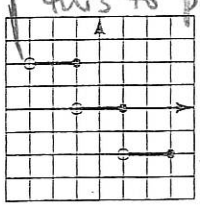


yes

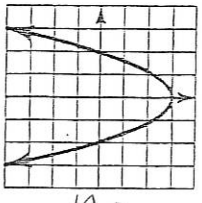


yes

→ the open circles allow this to pass the VLT



yes

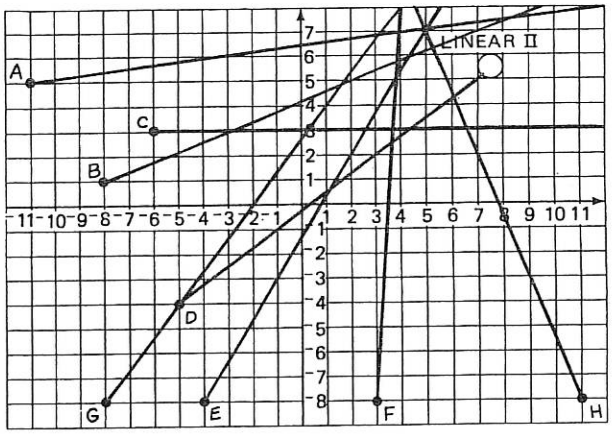


no

NAME_____ DATE_____ SCORE_____

Battle on a Galactic Plane

The eight fighters of the Galactic Patrol are to fire in order (*A*-*H*) at an attacking Battle Cruiser. Three direct hits will destroy the Cruiser. Their long-range scanning equipment is outdated so the shots will be scattered. However, they will be firing in the general direction of the planet Linear II.



The fighter positions and the slopes of their laser beams are listed below. Graph the shots and answer the questions.

A. Alpha Fighter: $(-11, 5)$, $m = \frac{1}{8}$

B. Beta Fighter: $(-8, 1)$, $m = \frac{2}{5}$

C. Gamma Fighter: $(-6, 3)$, $m = 0$

D. Delta Fighter: $(-5, -4)$, $m = \frac{3}{4}$

E. Epsilon Fighter: $(-4, -8)$, $m = \frac{5}{3}$

F. Zeta Fighter: $(3, -8)$, $m = 15$

G. Eta Fighter: $(-8, -8)$, $m = \frac{4}{3}$

H. Theta Fighter: $(11, -8)$, $m = -\frac{5}{2}$

1. Which fighter will return to base with a damaged hull? D
2. Which fighter's captain will have to apologize to those on Linear II? D
3. Which fighter's laser was aimed the farthest away from the Cruiser? C
4. What were the coordinates of the Cruiser's position (where 3 hits were made)? (5, 7)
5. Which fighters destroyed the Cruiser? A, E, H