

3. (5 pts) Fullahotair Balloon Company allows a maximum capacity of 3185 pounds. If the hot air stove weighs 185 pounds and the average adult weighs 150 pounds, how many adults can be safely carried aloft in one trip. (show work, guess and check is worth no points, this is an inequality)

let $x = \# \text{ adults}$ not needed

No pts if no work

$$185 + 150x \leq 3185$$

$$150x \leq 3000$$

$$x \leq 20$$

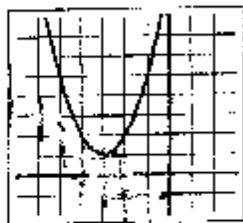
4. (3 pts) The graph of a quadratic function is given. Select the function's equation from the choices.

a.) $f(x) = (x + 3)^2 + 1$

b.) $f(x) = (x + 3)^2 - 1$

c.) $f(x) = (x - 3)^2 + 1$

d.) $f(x) = (x - 3)^2 - 1$



vertex $(-3, 1)$

5. (6 pts) Find the vertex and intercepts of the quadratic function $f(x) = x^2 - 2x - 3$

vertex $(1, -4)$ x-intercepts (if any) 3, -1 y-intercept -3

vertex: $x = \frac{-b}{2a} = \frac{-(-2)}{2(1)} = 1$ $f(1) = 1 - 2 - 3 = -4$

x-intercept: $y = 0$ $x^2 - 2x - 3 = 0$
 $(x - 3)(x + 1) = 0$, $x = 3, -1$

y intercept: $x = 0$, $0 - 0 - 3 = y$

6. (6 pts) Among all the pairs of numbers whose difference is 16, find a pair whose product is as small as possible. What is the pair and what is the minimum product? (show work, guess and check is worth no points)

Pair: 8 -8 product: -64

let $x = 1^{\text{st}}$ number
 $x - 16$ is 2^{nd} number

$1^{\text{st}} - 2^{\text{nd}} = 16$
 since $x - (x - 16) = 16$

product is: $x(x - 16) = x^2 - 16x$

opens up, vertex is min

$x = \frac{-(-16)}{2} = 8$