

## *PC30S Hand In #2*

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1. A rectangular field is to be enclosed by a fence and divided into three smaller plots by two fences parallel to one of the sides. Find the dimensions of the largest such field if 1200 metres of fencing are available.
2. A ball is thrown vertically upward with an initial velocity of 20 m/s. It can be shown that the distance  $d$  in metres of the ball from the release point in time  $t$  seconds is given by  $d = -5t^2 + 20t$ . Determine the maximum height attained by the ball and the number of seconds required to attain this maximum height.
3. An orange grove now has 20 trees per hectare, and the average yield is 300 oranges per tree. It is estimated that for each additional tree planted per hectare, the average yield per tree will be reduced by 10 oranges. How many trees per hectare will produce the largest yield?
4. A dealer finds that he can sell 800 radio sets at \$60.00 per set. However, for every \$2.00 drop in price he can sell 50 sets more. At what price per set should he sell in order to get the largest cash return?
5. For the parabola given by the equation  $y = -3x^2 + 24x + 27$ , find the
  - a. coordinates of the vertex
  - b. equation of the axis of symmetry
  - c. coordinates of the  $x$ -intercepts
  - d. domain and range

6. Match each equation to its graph.

1.  $y = 3x^2$

2.  $y = -\frac{1}{3}x^2$

3.  $y = 3(x+2)^2$

4.  $y+1 = 3(x+2)^2$

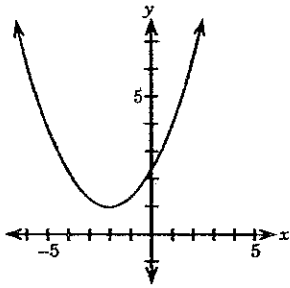
5.  $y-1 = \frac{1}{3}(x+2)^2$

6.  $y+1 = -3(x-2)^2$

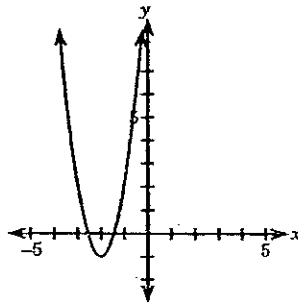
7.  $y = -\frac{1}{3}(x-2)^2$

8.  $y-1 = -\frac{1}{3}(x-2)^2$

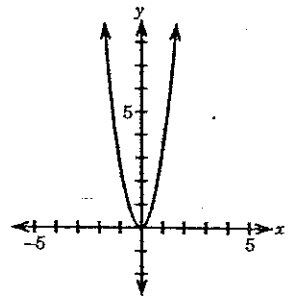
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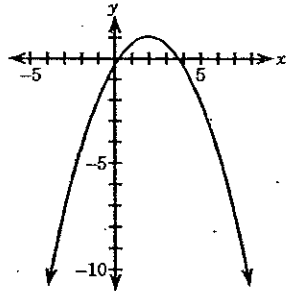
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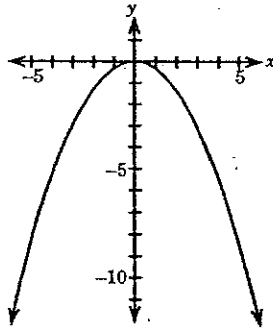
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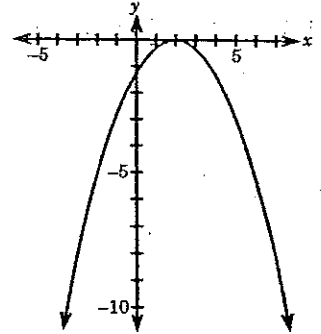
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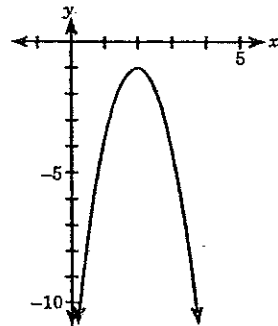
e.



f.



g.



h.

