DO NOW

Worksheet 4.7.2 Answers:

1. 3 seconds

6.
$$(\frac{3\sqrt{2}}{2}, \frac{9}{2})$$
 and $(\frac{-3\sqrt{2}}{2}, \frac{9}{2})$

2.
$$x = 15\sqrt{3}$$
; $y = 20\sqrt{3}$

7.
$$x = -\sqrt{\frac{3}{2}}$$
, $x = \sqrt{\frac{3}{2}}$

3. 14 employees

8. 60 m by 120 m

4. 6 in by 9 in

9. radius 3 in; height = 6 in

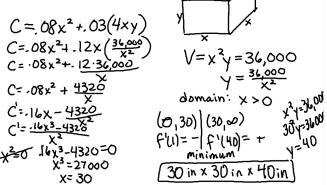
5. 18 in by 36 in

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Example:

7. An aquarium has a square base made of slate costing 8 cents per square inch and four glass sides costing 3 cents per square inch. The volume of the aquarium is to be 36,000 in³. Find the dimenstinos of the least expensive such aquarium.



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8. Missy Smith is at a point A on the north bank of a long straight river 6 miles wide. Directly across from her on the south bank is a point B, and she wishes to reach a cabin C located 6 miles down the river from B. Given that Missy can row at 6 mph and run at 10mph, how far from point B should she land the boat and begin running?

4.7 Optimization Problems - Day 3

If possible, make a sketch.

maximized or minimized.

of the primary equation.

1. Identify all given quantities and quantities to be determined.

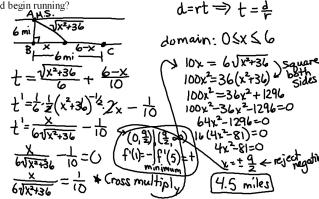
2. Write a **primary equation** for the quantity that is to be

3. Reduce the primary equation to one having a *single independent variable*. This may involve the use of **secondary equations** relating the independent variables

4. Determine the feasible domain of the primary equation.

5. Find the derivative of the primary equation and find its critical number

Use the first and/or second derivative tests to determine the maximum minimum. CLEARLY identify the appropriate answer(s).



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HOMEWORK

Worksheet - HW 4.7.3