OPMT 0198 Exam Sample Questions

Order of operations - perform the following indicated operations:

1. $1500(1 + (.05)\frac{9}{12})^{-1}$

2. $.00005 * .00025$

3. $(\frac{3}{8} + \frac{2}{3})\frac{1}{4}$

4. $\dfrac{1000}{10(.25)}$

Remove Brackets and Group like terms

5. $3x$(4x-5y-6)

6. $6(2x + 3xy) - 8x(3 - 4y)$

Solve the system of equations for x and y

7. 3x +2y =7

   24-8y = 8x

Break even Analysis

8. You have developed a small nuclear reactor that uses the left over Americium from discarded smoke detectors. The reactors will sell for $2,000 each. Variable costs are $1,500 per reactor and fixed costs are $5,000 per month.

    a.   How many reactors do you need to sell to break even?

    b.   If you sell 200 reactors what price should you charge to make $6,000?

Simplify and write with no negative exponents

9. $\dfrac{(3x^2)(2x^2)}{3x^2}$

10. $\quad \dfrac{x^{-2}y^{-3}}{x^4y^{-2}}$

Divide

11. $\quad \dfrac{6x^2+x^2+7x+x}{3x-1}$

Factor

12. $2x^2 - 32x + 110$

Solve for x

13. $2x^2 - 5x - 3 = 0$

14. $3 = 7x - 4x^2$

Simplify

15. $\dfrac{x^2+2x-3}{4x^2-5x+1}$

16. You have begun you first week as purchasing agent for Moe's Tavern. You have a beer budget of $540 to spend on canned and bottled beer. The storage room in the back of the Tavern has a remaining capacity of 110 cubic feet. A case of bottled beer costs $12 and has a volume of 2.5 cubic feet. A case of canned beer costs $10 and has a volume of 2 feet.

   a. How much of each kind of beer should you buy if you want to spend your whole budget and use all the remaining space?

b. Graph the equations for capacity and cost and show the intersection point on the graph. Be sure to label your graph and clearly show your scale