

Name:

Exam 2

Sec 4  
Winter 2019  
Exam 2

Name: \_\_\_\_\_

Time Limit: 90 min

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- **DO NOT open the exam booklet until you are told to begin. You should write your name and section number at the top and read the instructions.**

- Organize your work, in a reasonably neat and coherent way, in the space provided. If you wish for something to not be graded, please strike it out neatly. I will grade only work on the exam paper, unless you clearly indicate your desire for me to grade work on additional pages.

- You may use any results from class, homework or the text, but you must cite the result you are using. You must prove everything else.

- You needn't spend your time rewriting definitions or axioms on the exam.

- When you have completed your test, hand it to me and go have a great weekend!

Problem	Points	Score
1	5	
2	5	
3	10	
4	10	
5	15	
6	10	
Total:	55	



3. (10 points) Solve and check your result.

$$\begin{cases} 2x - 6y = -24 \\ x - 5y = -22 \end{cases}$$

4. (10 points) If 100 coins consists of quarters and dimes, how many of each are there if they are \$20.80 in total?

5. Solve,

$$4(x + 3)^2 - 3 = 17$$

(a) (5 points) (b) (5 points)  $n^2 + 8n + 15 = 0$

(c) (5 points)  $x^2 - x + 1 = 0$

6. Find the solutions of each expression.

(a) (5 points)  $\frac{4}{y-4} - \frac{3}{y-3} = 1$

(b) (5 points)  $x + 2\sqrt{x+1} = 7$

## Formulas

### Exponents

$$a^0 = 1$$

$$a^m \cdot a^n = a^{m+n}$$

$$\frac{a^n}{a^m} = a^{n-m}$$

$$(a^n)^m = a^{mn}$$

$$(ab)^n = a^n b^n$$

$$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$$

$$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$$

### Product/factors

$$(a + b)^2 = a^2 + 2ab + b^2$$

$$(a - b)^2 = a^2 - 2ab + b^2$$

$$a^2 - b^2 = (a - b)(a + b)$$

$$a^3 + b^3 = (a + b)(a^2 - ab + b^2)$$

$$a^3 - b^3 = (a - b)(a^2 + ab + b^2)$$

### Radicals

$$\sqrt[n]{xy} = \sqrt[n]{x} \sqrt[n]{y}$$

$$\sqrt[n]{\frac{x}{y}} = \frac{\sqrt[n]{x}}{\sqrt[n]{y}}$$

$$x^{\frac{m}{n}} = \sqrt[n]{x^m} = (\sqrt[n]{x})^m$$

### Square Root Property

If  $X^2 = k$  and  $k \geq 0$  then  $X = \pm k$ .

### Quadratic formula

$$\Delta = b^2 - 4ac, \frac{-b \pm \sqrt{\Delta}}{2a}$$