Boca Prep International School

11th Grade
Summer Reading
2017-2018

The primary purpose of Boca Prep's summer reading program is to foster each student's appreciation of quality literature, hopefully leading him or her to discover that reading is an enjoyable, rewarding activity. Other benefits include the continued development of personal vocabulary, reading comprehension skills and a broadening knowledge of various cultures and periods of history. All of these contribute to the student's overall ability to think critically, to write cogently and to make valuable intellectual connections. Reading for pleasure during the summer is a time-tested leisure activity that promotes a growing awareness of peoples and places, self-discipline and self-esteem. Shared reading of a particular selection by a group of friends or family members makes possible interesting conversations and an exchange of ideas.
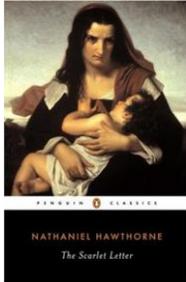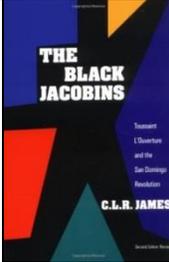
A selection of books for each grade has been carefully put together by your child's Teaching Team; these titles have all been chosen by using the upcoming curriculum as a guide.

We hope that this reading experience is an enjoyable one for your child and your family, and look forward to discussing these books with our students next fall.

Happy Reading!

IB DP Teaching Team

Subject	Required Assignment	Materials

English SL/HL	Read *Baldwin: Collected Essays* and write a 1-page typed reflection.
	
	State the following in your reflection:
	    A. What you understood.
	    B. What you liked.
	    C. What you disliked.
	    D. What you learned.
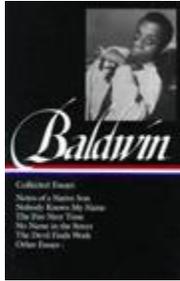	
	The reflection must be written in MLA format and include 2 in-text citation as well as a work cited page.
		Baldwin: Collected Essays
		by James Baldwin

English HS	Read *The Scarlet Letter* and write a 1-page typed reflection.
	
	State the following in your reflection:
	    A. What you understood.
	    B. What you liked.
	    C. What you disliked.
	    D. What you learned.
	
	The reflection must be written in MLA format and include 2 in-text citation as well as a work cited page.
		The Scarlet Letter
		by Nathaniel Hawthorne

History HS/SL/HL	See Document **"Reading Practices"**	**The Black Jacobins** by: C.L.R. James
Math Studies and Mathematics SL	See Document **"Summer Math Review Packet"** Packets should be completed by the first day of school.	

History Guidelines for Summer Reading

Reading Practices and Review Outline

Reading secondary sources is central to this course. In order to do this well, you must consciously take steps when reading. These guidelines are designed to offer you some suggestions for how to read secondary sources and to outline how to write a review of the readings for each class meeting. Students are required to write a review of Cuba: A New History.

<u>Reading Practices</u>

Enjoying reading is a prerequisite for being a student of history, but the reading you will do will often not seem enjoyable. Part of this is the nature of some things you will he required to read: scholarly writing is sometimes dense. Often, the most important works are something of a slog. Love of the printed word is often not enough to get you through in these cases. To make your way through the scholarly works we'll be reading this semester, keep these suggestions in mind.

1. **History, even in narrative form, is an argument.** At the center of every work of history is a thesis that the author sets out in answer to a specific historical problem. Your job as It reader becomes easier when you identify this. In books, both the problem and the thesis come in the preface or introduction, smaller problems and sub-arguments will be noted in each chapter, usually in the introductory paragraphs. In articles, these are also in the introductory paragraphs. As you read, focus on these sections to figure these out.

2. **Evidence is presented to support the arguments, not to tell a story.** The best histories fuse narrative and argument, but supporting the argument is always the key. As authors present evidence - the stories - they do so to bolster the claims they make. If you remember this, you are less likely to get buried in the detail of the evidence. (This, of course, is the nightmare of reading: 'How am I supposed to remember all this?") You should pay attention to the evidence - especially how it was collected, how it is presented, what is not presented, and how it might lead one to different conclusions - but do not worry about remembering it all. (Here's a little secret: even the authors can't remember every anecdote, statistic, or quote.) Instead, focus on what evidence is presented to defend a claim. This means you won't need to know the name of every person encountered, but you will need to know those that are clearly key persons.

3. **Arm yourself with a pen and notebook when you read.** We often dream of taking a good scholarly work to the beach and breezing through it as we dig our toes deeper into the sand. This approach might work for novels, but it will not do for reading scholarly work. Reading with just a pen is to be only half prepared, too. (How many times have you begun underlining only to realize you underlined everything and find yourself at a loss as to why? Or, more often, wondering why you didn't underline certain parts?) As you read, you should turn to your notebook often. Write down important quotes (like the thesis statement), sketch out the author's key points by breaking down the structure of the essay or book, and write down your ideas/questions about certain points. (Notice: I said "and." The notebook should be used for all these things (and more, depending on your style.) Notebooks can also be helpful places to jot down citations or simply note turns of phrase you find compelling.

4. **Don't read every word.** This is heresy of course. But heresies are sometimes (often?) true. I m not suggesting you skim, but learn how to read quickly for the main ideas. Read the introduction/preface, introductory paragraphs, topic sentences, transitions, and conclusions carefully. Slow down if you find the book is not making sense (or too much sense; surely the arguments are more thought out than that!)

5. **Write down every word you don't know.** As you read, if you come across a word and you don't know what it means, define it. Have a section of your notebook devoted solely to new words. This is one of the most important steps towards becoming a self-directed learner.

Writing Reviews

Armed with this knowledge of how to read like a scholar - as if there is one way - you are required to write a brief review of the secondary works we'll be reading in class and over the summer. These reviews are to be similar to book reviews, in that you'll be gauging the arguments, approaches, and success of the various works, but I am looking that you take the readings as a group and analyze them in light of each other and the field in general. Your reviews will vary , of course, but there should be some key elements in each.

I. **Introduction**. Introduce the readings in a compelling way. Explain the broader question or questions they are trying to get at without necessarily referring to each one specifically (yet). For example, if the readings focus on how Florida politics evolved in the late twentieth century, then give this context. In other words, a reader should be able to see how they fit together.

2. **Thesis statement**. While you are not establishing an argument from primary sources, you are nevertheless making an argument about how these secondary works fit together. You should assess what insights, approaches, ideas, or points of contention the works bring together. As in other essays, this is the heart of the review.

3. **Evidence drawn from the works**. As in any essay, you need evidence to support your argument. Your evidence should come from the works. The word limit (500 words, firm) will keep you from dealing with any of the works in too much depth (in other words: don't try to summarize the works), but you should be able to develop enough of a description of each one that it will make sense to the reader. Your job is to compare the works, but not necessarily contrast them (not every work we read will disagree with the others). How do they inform each other? How does reading them together shape our understanding? You do not have to give each piece equal weight, but consider them relative to the claims they make. (In other words, don't give an essay equal space as a book, unless it makes much more interesting claims.)

4. **Conclusion**. In a short essay, a conclusion does not need to be a full paragraph, but do your best to develop a pithy sentence or two to sum up your assessment. Think of what questions the works leave unanswered or what questions they might prompt. Think of what a reader should really walk away with when done with the essay.

5. **A Title**. Seems funny to list this last, but write your essay first, then come up with a pithy title that helps to encapsulate your argument.

All reading reviews must be submitted in hard copy and stapled.

More information available here:

http://clas.uiowa.edu/history/teaching-and-writing-center/guides/book-review

Math Studies and Math SL

Name:

The attached assignment covers prerequisites for math studies. In other words, these are objectives that you should have mastered in geometry and algebra 2. We will be testing on these objectives the first or second class of the year. The assignment is an opportunity for you to review and ensure that you have mastered the prerequisites.

Radicals:

To simplify means that 1) no radicand has a perfect square factor <u>and</u>
  2) there is no radical in the denominator (rationalize).

Recall – the **Product Property** $\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$ and the **Quotient Property** $\sqrt{\dfrac{a}{b}} = \dfrac{\sqrt{a}}{\sqrt{b}}$

<u>**Examples**</u>: Simplify $\sqrt{24} = \sqrt{4} \cdot \sqrt{6}$ find a perfect square factor
          $= 2\sqrt{6}$ simplify

Simplify $\sqrt{\dfrac{7}{2}} = \dfrac{\sqrt{7}}{\sqrt{2}} \cdot \dfrac{\sqrt{2}}{\sqrt{2}}$ split apart, then multiply by both the numerator and the

          denominator by $\sqrt{2}$

$= \dfrac{\sqrt{14}}{\sqrt{4}} = \dfrac{\sqrt{14}}{2}$ multiply straight across and simplify

If the denominator contains 2 terms –
 multiply the numerator and the denominator by the *conjugate* of the denominator
The *conjugate* of $3 + \sqrt{2}$ is $3 - \sqrt{2}$ (the sign changes between the terms).

Simplify each of the following.

1. $\sqrt{32}$

2. $\sqrt{(2x)^8}$

3. $\sqrt[3]{-64}$

4. $\sqrt{49m^2n^8}$

5. $\sqrt{\dfrac{11}{9}}$

6. $\sqrt{60} \cdot \sqrt{105}$

7. $\left(\sqrt{5} - \sqrt{6}\right)\left(\sqrt{5} + \sqrt{2}\right)$

Rationalize.

8. $\dfrac{1}{\sqrt{2}}$

9. $\dfrac{2}{\sqrt{3}}$

10. $\dfrac{3}{2 - \sqrt{5}}$

Complex Numbers:

Form of complex number : $\quad a + bi$
            Where a is the "real" is part and bi is the "imaginary" part

            Always make these substitutions $\quad \sqrt{-1} = i$ and $i^2 = -1$

- To simplify: pull out the $\sqrt{-1}$ before performing any operation

Example: $\sqrt{-5} = \sqrt{-1} \cdot \sqrt{5}$ Pull out $\sqrt{-1}$ **Example**: $(i\sqrt{5})^2 = i\sqrt{5} \cdot i\sqrt{5}$ List twice
            $= i\sqrt{5}$ Make substitution $= i^2\sqrt{25}$ Simplify
                                                     $= (-1)(5) = -5$ Substitute

- Treat i like any other variable when +, -, ×, or ÷ (but always simplify $i^2 = -1$)

Example: $2i(3 + i) = 2(3i) + 2i(i)$ Distribute
                    $= 6i + 2i^2$ Simplify
                    $= 6i + 2(-1)$ Make substitution
                    $= -2 + 6i$ Simplify and rewrite in complex form

- Since $i = \sqrt{-1}$, no answer can have an 'i' in the denominator **RATIONALIZE!!**

Simplify.

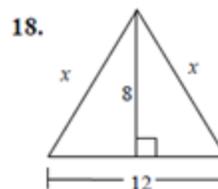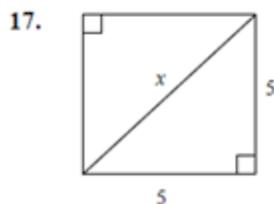**11.** $\sqrt{-49}$

12. $6\sqrt{-12}$

13. $-6(2 - 8i) + 3(5 + 7i)$
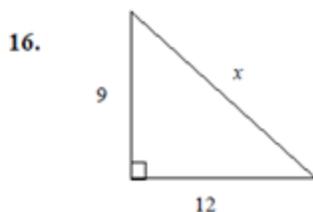
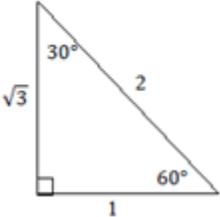**14.** $(3-4i)^2$ **15.** $(6-4i)(6+4i)$
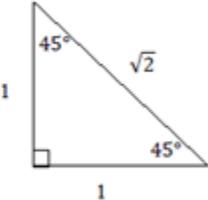
<u>**Geometry:**</u>

Pythagorean Theorem (right triangles): $a^2 + b^2 = c^2$

Find the value of x.

16.

17.

18.

9, x, 12

x, 5, 5

x, 8, x, 12

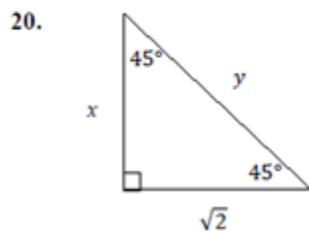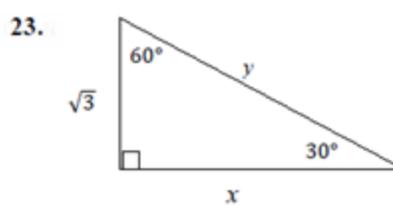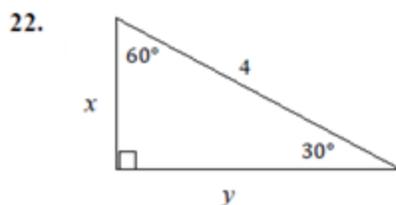**19.**   A square has perimeter 12 cm. Find the length of the diagonal.

In $30° - 60° - 90°$ triangles, Sides are in proportion $1: \sqrt{3} : 2$	In $45° - 45° - 90°$ triangles, Sides are in proportion $1: 1 : \sqrt{2}$
$30°$, 2, $\sqrt{3}$, $60°$, 1	$45°$, $\sqrt{2}$, 1, $45°$, 1

Solve for x and y.

20.

$45°$, y, x, $45°$, $\sqrt{2}$

21.

$45°$, 4, x, $45°$, y

22.

60°
4
x
30°
y

23.

60°
y
$\sqrt{3}$
30°
x
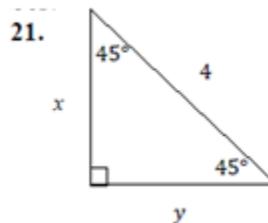
Equations of Lines:

Slope intercept form: $y = mx + b$

Point-slope form: $y - y_1 = m(x - x_1)$

Standard Form: $Ax + By = C$

Vertical line: $x = a$ (slope is undefined)

Horizontal line: $y = b$ (slope is 0)

Slope: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

24. State the slope and y-intercept of the linear equation: $5x - 4y = 8$.

25. Find the x-intercept and y-intercept of the equation: $2x - y = 5$

26. Write the equation in standard form: $y = 7x - 5$

Write the equation of the line in slope-intercept form with the following conditions:

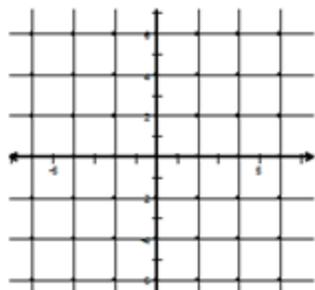28. slope $= -5$ and passes through the point $(-3, -8)$

27. passes through the points $(4, 3)$ and $(7, -2)$
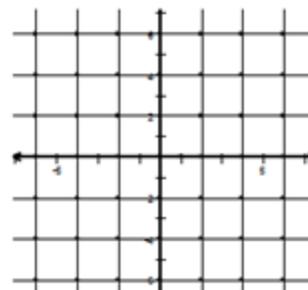
29. x-intercept $= 3$ and y-intercept $= 2$

Graphing:

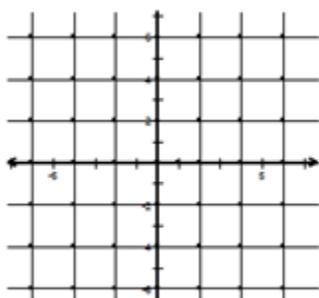**Graph each function, inequality, and / or system.**
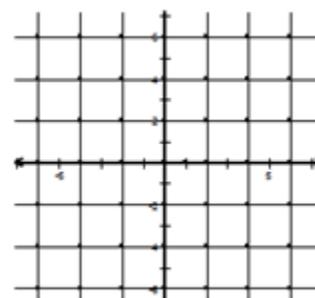
30. $3x - 4y = 12$

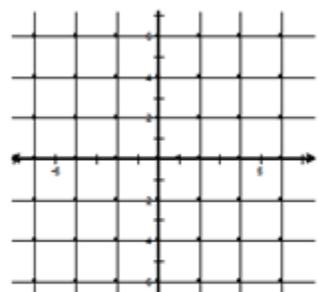**31.** $\begin{cases} 2x + y = 4 \\ x - y = 2 \end{cases}$

32. $y < -4x - 2$

33. $y + 2 = |x + 1|$

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

Vertex: _____

x-intercept(s): _____

y-intercept(s): _____

Systems of Equations:

$3x + y = 6$
$2x - 2y = 4$

Substitution:
Solve 1 equation for 1 variable.
Rearrange.
Plug into 2nd equation.
Solve for the other variable.

Elimination:
Find opposite coefficients for 1 variable.
Multiply equation(s) by constant(s).
Add equations together (lose 1 variable).
Solve for variable.

Then plug answer back into an original equation to solve for the 2nd variable.

$y = 6 - 3x$ solve 1st equation for y
$2x - 2(6 - 3x) = 4$ plug into 2nd equation
$2x - 12 + 6x = 4$ distribute
$8x = 16$ simplify
$x = 2$

$6x + 2y = 12$ multiply 1st equation by 2
$2x - 2y = 4$ coefficients of y are opposite
$8x = 16$ add
$x = 2$ simplify

Plug $x = 2$ back into original

$3(2) + y = 6$
$6 + y = 6$
$y = 0$

Solve each system of equations. Use any method.

35. $\begin{cases} 2x + y = 4 \\ 3x + 2y = 1 \end{cases}$

36. $\begin{cases} 2x + y = 4 \\ 3x - y = 14 \end{cases}$

Exponents:

TWO RULES OF ONE
1. $a^1 = a$
Any number raised to the power of one equals itself.
2. $1^a = 1$
One to any power is one.

ZERO RULE
3. $a^0 = 1$
Any nonzero number raised to the power of zero is one.

PRODUCT RULE
4. $a^m \cdot a^n = a^{m+n}$
When multiplying two powers that have the same base, add the exponents.

QUOTIENT RULE
5. $\dfrac{a^m}{a^n} = a^{m-n}$
When dividing two powers with the same base, subtract the exponents.

POWER RULE
6. $(a^m)^n = a^{mn}$
When a power is raised to another power, multiply the exponents.

NEGATIVE EXPONENTS
7. $a^{-n} = \dfrac{1}{a^n}$ and $\dfrac{1}{a^{-n}} = a^n$
Any nonzero number raised to a negative power equals its reciprocal raised to the opposite positive power.

Express each of the following in simplest form. Answers should not have any negative exponents.

37. $5a^0$

38. $\dfrac{3c}{c^{-1}}$

39. $\dfrac{2ef^{-1}}{e^{-1}}$

40. $\dfrac{(n^3 p^{-1})^2}{(np)^{-2}}$

Simplify.

41. $3m^2 \bullet 2m$

42. $(a^3)^2$

43. $(-b^3 c^4)^5$

44. $4m(3a^2 m)$

Polynomials:

> To add / subtract polynomials, combine like terms.
>
> EX: $8x - 3y + 6 - (6y + 4x - 9)$ *Distribute the negative through the parantheses.*
> $= 8x - 3y + 6 - 6y - 4x + 9$ *Combine terms with similar variables.*
> $= 8x - 4x - 3y - 6y + 6 + 9$
> $= 4x - 9y + 15$

Simplify.

45. $3x^3 + 9 + 7x^2 - x^3$

46. $7m - 6 - (2m + 5)$

> To multiplying two binomials, use FOIL.
>
> EX: $(3x - 2)(x + 4)$ *Multiply the first, outer, inner, then last terms.*
> $= 3x^2 + 12x - 2x - 8$ *Combine like terms.*
> $= 3x^2 + 10x - 8$

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> $= 3x^2 + 10x - 8$

Multiply.

47. $(3a + 1)(a - 2)$

48. $(s + 3)(s - 3)$

49. $(c - 5)^2$

50. $(5x + 7y)(5x - 7y)$

Factoring.
Follow these steps in order to factor polynomials.
STEP 1: Look for a GCF in ALL of the terms.

a.) If you have one (other than 1) factor it out front.
b.) If you don't have one, move on to STEP 2.

STEP 2: How many terms does the polynomial have?

2 Terms
a.) Is it difference of two squares? $a^2 - b^2 = (a+b)(a-b)$
EX: $x^2 - 25 = (x+5)(x-5)$

b.) Is it sum or difference of two cubes?
$$a^3 - b^3 = (a-b)(a^2 + ab + b^2)$$
$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$

EX: $m^3 + 64 = (m+4)(m^2 - 4m + 16)$
$p^3 - 125 = (p-5)(p^2 + 5p + 25)$

3 Terms
$x^2 + bx + c = (x+\ \ )(x+\ \ )$ Ex: $x^2 + 7x + 12 = (x+3)(x+4)$

$x^2 - bx + c = (x-\ \ )(x-\ \ )$ $x^2 - 5x + 4 = (x-1)(x-4)$

$x^2 + bx - c = (x-\ \ )(x+\ \ )$ $x^2 + 6x - 16 = (x-2)(x+8)$

$x^2 - bx - c = (x-\ \ )(x+\ \ )$ $x^2 - 2x - 24 = (x-6)(x+4)$

4 Terms -- Factor by Grouping
a.) Pair up first two terms and last two terms
b.) Factor out GCF of each pair of numbers.
c.) Factor out front the parentheses that the terms have in common.
d.) Put leftover terms in parentheses.

Ex: $x^3 + 3x^2 + 9x + 27 = (x^3 + 3x^2) + (9x + 27)$
$= x^2(x+3) + 9(x+3)$
$= (x+3)(x^2+9)$

Factor completely.

51. $z^2 + 4z - 12$

52. $6 - 5x - x^2$

53. $2k^2 + 2k - 60$

54. $-10b^4 - 15b^2$

55. $9c^2 + 30c + 25$

56. $9n^2 - 4$

To solve quadratic equations, try to factor first and set each factor equal to zero. Solve for your variable. If the quadratic does NOT factor, use quadratic formula.

EX: $x^2 - 4x = 21$ *Set equal to zero FIRST.*

$x^2 - 4x - 21 = 0$ *Now factor.*

$(x + 3)(x - 7) = 0$ *Set each factor equal to zero.*

$x + 3 = 0$ $x - 7 = 0$ *Solve each for x.*

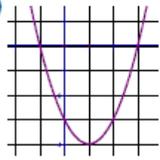$x = -3$ $x = 7$

Solve each equation.

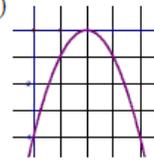57. $x^2 - 4x - 12 = 0$ 58. $x^2 + 25 = 10x$ 59. $x^2 - 14x + 40 = 0$

DISCRIMINANT: The number under the radical in the quadratic formula $(b^2 - 4ac)$ can tell you what kinds of roots you will have.

IF $b^2 - 4ac > 0$ you will have **TWO real roots.**   IF $b^2 - 4ac = 0$ you will have **ONE real root**
(touches x-axis twice)   (touches the x-axis once)

IF $b^2 - 4ac < 0$ you will have **TWO imaginary roots.**
(Graph does not cross the x-axis)
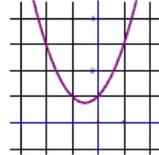
QUADRATIC FORMULA – allows you to solve any quadratic for all its real and imaginary

roots. $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

EX: In the equation: $x^2 + 2x + 3 = 0$, find the value of the discriminant, describe the nature of the roots, then solve.

$x^2 + 2x + 3 = 0$ Determine values for $a, b,$ and c.

$a = 1 \;\; b = 2 \;\; c = 3$ Find dicriminant.

$D = 2^2 - 4 \cdot 1 \cdot 3$

$D = 4 - 12$

$D = -8$ *There are two imaginary roots.*

Solve: $\; x = \dfrac{-2 \pm \sqrt{-8}}{2}$

$\; x = \dfrac{-2 \pm 2i\sqrt{2}}{2}$

$\; x = -1 \pm i\sqrt{2}$

Find the value of the discriminant, describe the nature of the roots, then solve each quadratic. Use EXACT values.

60. $x^2 - 9x + 14 = 0$ **61.** $5x^2 - 2x + 4 = 0$

Discriminant = _____   Discriminant = _____

Type of Roots: _____   Type of Roots: _____

Roots = _____   Roots = _____

Long Division – can be used when dividing any polynomials.
Synthetic Division – can ONLY be used when dividing a polynomial
    by a linear (degree one) polynomial.

EX: $\dfrac{2x^3 + 3x^2 - 6x + 10}{x + 3}$

Long Division

$\dfrac{2x^3 + 3x^2 - 6x + 10}{x + 3}$

$= x + 3 \overline{)\, 2x^3 + 3x^2 - 6x + 10} \quad 2x^2 - 3x + 3 + \dfrac{1}{x+3}$

$\underline{(-)\ (2x^3 + 6x^2)}$

$\qquad -3x^2 - 6x$

$\qquad \underline{(-)\ (-3x^2 - 9x)}$

$\qquad\qquad 3x + 10$

$\qquad\qquad \underline{(-)\ (3x + 9)}$

$\qquad\qquad\qquad 1$

Synthetic Division

$\dfrac{2x^3 + 3x^2 - 6x + 10}{x + 3}$

$\underline{-3|} \quad 2 \qquad 3 \qquad -6 \qquad 10$

$\qquad\quad \downarrow \quad -6 \qquad 9 \qquad -9$

$\overline{\qquad\quad 2 \quad -3 \qquad 3 \qquad 1}$

$= 2x - 3x + 3 + \dfrac{1}{x+3}$

Divide each polynomial using long division OR synthetic division.

62. $\dfrac{c^3 - 3c^2 + 18c - 16}{c^2 + 3c - 2}$

63. $\dfrac{x^4 - 2x^2 - x + 2}{x + 2}$