


1. Hello, and welcome to the Orientation section of your course. This set of problems will introduce you to many of the features that you might see as you work through this course.

This problem will highlight some of the helpful features that are available in most problems.

When you are practicing problems in the Study Plan, or working on a Homework assignment, the problems are broken up into steps, which are displayed one at a time.

Some steps do not require you to enter an answer. After you have read the information in one of these steps, click the Continue button to advance to the next step.

Did you notice? At the bottom left of the window, there is a status line that provides directions for the current step.

Right now it says "Press Continue to see more." At the right end of the status line, there is a button, , which opens up a Student Help menu that you can reference for more information.

When an active step requires you to enter an answer or answers before advancing to the next step, you can check whether the answer(s) in the current active part are correct by clicking the Check Answer button.

In general, for a step with an answer box, the player allows three incorrect tries before marking the answer box incorrect and displaying the correct answer. Note that on a Homework assignment the Check Answer button changes to say Final Check on your last try.

Type the number 1 in the following answer box. _____

Notice the Question Help dropdown menu on the top right of the window. That menu contains learning aids that demonstrate how to answer similar questions to the one you are working on. Some or all of these learning aids may be available depending on your instructor's settings for this course.

Click the Animation button and watch the "How to Enter Answers" tour. Then try some of the other learning aids.

Careful: The Help Me Solve This link will give you information about solving the problem you are working on, but then when you close that link, it will reload the exercise, requiring you to start over with a similar but different problem.

Some questions will contain information, like charts or tables, in a popup step. To open the popup, click on the icon or the text of the hyperlink, as directed.

¹Click the icon to view the correct answer, OR [click here to view the answer](#).²

Type the number shown in the popup. _____

You have completed this problem. You can either go on to the next problem, or you can try a similar version of this problem, if additional attempts are allowed by your instructor, by clicking Similar Question.

1: Answer to the following question

The answer is 6.

2: Answer to the following question

The answer is 6.

2. Some questions require you to choose a single correct answer from a list of possible answers.

Click the button near the choice to select your answer. Then click the Check Answer button. You might also want to try an incorrect answer to see the feedback that will be displayed.

Choose the smiling face below.

☐ A.

☐ B.

☐ C.

☐ D.



Did you notice? Questions like the one above use a circular button for each choice, and you can only choose one answer from the list for each attempt.

3. Some questions allow you to choose several correct answers from a list of possible answers.

Click the square near each correct choice to fill it in. Be sure to mark all correct answers.

Which of the following mathematical statements are true? Select all that apply.

☐ A. $2 - 2 = 1$

☐ B. $1 \cdot 2 = 2$

☐ C. $1 + 2 = 2$

☐ D. $1 + 1 = 2$

☐ E. $1 \cdot 1 = 1$

Did you notice? Questions like the one above use a square button for each choice, and you can choose multiple answers from the list for each attempt.

4. Some questions require you to choose an answer from a dropdown list.

Click the dropdown list below to view the choices, and then click on the correct answer to select it. To change your answer, click the answer box to reopen the list of choices.

To get credit for this question, your answer must be (1) _____.

Careful: Because there are only two answer choices for this question, by default you will only get one try to answer it correctly.

(1) ☐ correct

☐ incorrect

5. Many problems require you to enter a number or expression in an answer box, using the keyboard.

Answer the following question by clicking in the answer box and typing your answer. Then click the Check Answer button.

You might also want to try an incorrect answer to see the feedback that will be displayed.

$$4 + 1 = \underline{\hspace{2cm}}$$

(Simplify your answer. Type a whole number.)

Did you notice? The special **navy blue** instructions, in parentheses, that appear after the answer box give directions about how to enter your answer. It is important to read and follow these instructions so that your answer will be entered in the correct form. Unless it is otherwise stated, your answer should be exact and simplified as much as possible.

The **math tool palette** contains templates that you can use to enter fractions, exponents, roots, and other special math notation. The math tool palette is shown along the bottom of the window and only appears when you click into an answer box. You can expand it to show more tool buttons or collapse it to show fewer buttons.



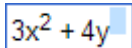
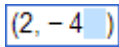
To use the palette:

1. Click on the location in the answer box where you want to insert a symbol or template.
2. Click on the button in the math palette for the symbol or template you want to insert.
3. Once a template is inserted, click in the blue box to fill in the necessary value(s).
4. Click or use the directional arrows to move the cursor outside the template in order to continue entering your answer.

The math tool palette is not present in this step because there is no answer box. You will be able to practice using the palette in one of the following steps.

Careful: Always be sure to delete any unused templates from the answer box before clicking "Check Answer." For your answer to be complete, all the blue boxes within each template must be filled in.

Select the picture(s) below that show answers that are complete, meaning that they do not contain any empty blue boxes from a template. Select all answers that are complete.

- ☐ A. 
- ☐ B. 
- ☐ C. 
- ☐ D. 
- ☐ E. None of the above answers are complete.

Use the fraction and exponent templates from the math palette (or use the associated keyboard shortcuts) to enter $\frac{x^2}{3}$ into the answer box.

Enter $\frac{x^2}{3}$ here. _____

Careful! Be sure the exponent 2 is right next to the x *inside* the fraction. If the exponent is outside the fraction, your answer may look similar but will be evaluated differently. You will know your cursor is inside the fraction when the blue box for the fraction template displays. You can tell the exponent is inside the fraction when the fraction bar is extended to display beneath the 2, like in the fraction shown above.

The following tips can help you to avoid common mistakes that students make with entering answers into answer boxes.

Equations

Do not enter "x =" or "y =" in the answer box if that part of the equation is already given before the answer box.

Correct: $x = 4$

Incorrect: $x = x = 4$

Click the Continue button to advance to the next step.

Rounding

Answers should only be rounded when the problem specifically asks for a rounded answer. Pay close attention to the rounding instructions given in the problem. Unless otherwise instructed, always use the most precise numbers possible when calculating your answer, and then round only the final answer to the specified number of decimal places.

Multiple answers

When problems expect multiple answers in a single answer box, the answers must be separated by commas. If you are using templates from the math palette in one of those answers, be sure to type the comma outside of the template.

Choose the answer below that has the commas entered in the correct positions.

- ☐ A. $\sqrt{3}, \frac{1}{2}, |5|, 4$
- ☐ B. $\sqrt{3}, \frac{1}{2}, |5|, 4$
- ☐ C. $\sqrt{3}, \frac{1}{2}, |5|, 4$
- ☐ D. $\sqrt{3}, \frac{1}{2}, |5|, 4$

Copy/Paste

Using copy/paste is only recommended for copying numbers from an online calculator or spreadsheet program allowed by your instructor, or for copying an existing expression from your answer box to duplicate it in that answer box or another answer box.

Careful! Other programs use different coding for mathematical templates and symbols, and so expressions copied in from other programs or websites may not be recognized. It is always a best practice to enter your answer using the keyboard and the math palette.

Alternate Answers and Tolerance

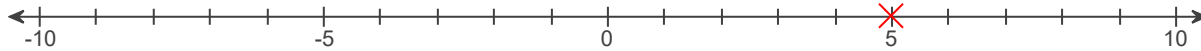
If a problem requires you to round before the final answer or if there are a few different ways to solve a problem, there may be multiple answers which are close to each other, that are all considered to be correct. Sometimes there will be several particular answers that are accepted, and sometimes answers that are within a certain range will be accepted. Try to maintain as much precision as possible when calculating rounded answers.

Enter 4, 6, or any number between 4 and 6 in the answer box. _____
(Type an integer or a decimal.)

6. Some questions make use of the **Interactive Number Line**, which allows you to place a point at a specific location on a number line.

Plot a point at the number 5, marked with a X on the number line.

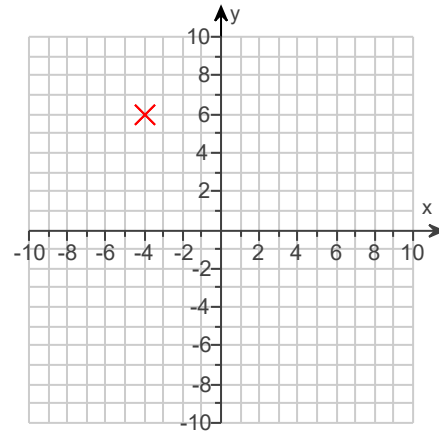
On this number line, the point is initially shown as a dot located at zero. To move this point to the expected location, either **click and drag the point** or **click on the graph and use the arrow keys**.



7. Some questions make use of the **Point Plotting Tool**, which allows you to place a point at a specific location on a graph.

³ Click the icon to view instructions for the Point Plotting Tool.

Plot the point $(-4, 6)$, located at the X, on the graph to the right.



3: Point Plotting Tool Instructions

You can click the pop out button associated with the graph to view the Point Plotting Tool in an enlarged popup window. Alternatively, you can use the Zoom In / Zoom Out magnifying glass buttons associated with the graph to change the size of the graph.




On this graph, the point is initially shown as a dot located at $(0,0)$. To move this point to the expected location, **click and drag the point** or **click on the graph and use the arrow keys**.

For some problems, like this one, the coordinates of the point you are moving will be displayed. See that this information is displayed below the graph in this problem.

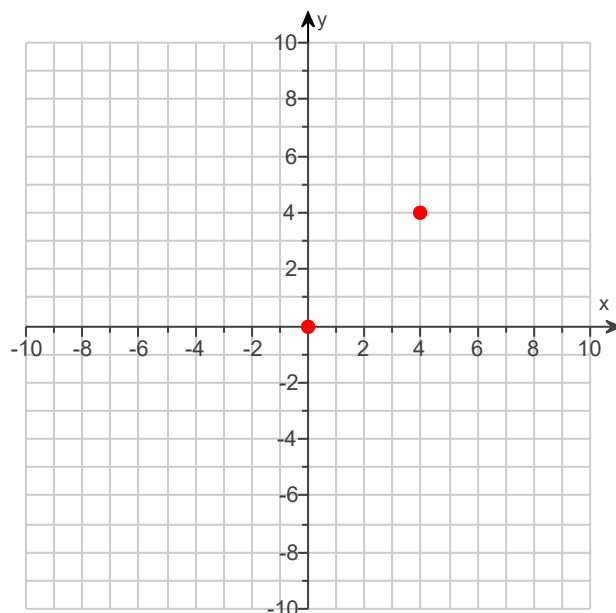
8. Some questions make use of the **Interactive Graphing Tool**, which allows you to draw a variety of graphs.

⁴ Click the icon to view instructions for the Interactive Graphing Tool.

Draw a dashed line using the points $(0,0)$ and $(4,4)$, which are shown on the graph, and shade the region of the graph above the dashed line.

Use the line tool button  and the dashed selector button  on the graphing palette to draw a dashed line using the given points on the graph. Then use the region shading tool  to place a shading bucket above the dashed line.

Did you notice? The instructions above say to use the given points when drawing the line. If you draw the line using other points, your answer will be incorrect.





4: Interactive Graphing Tool Instructions

You can use the "Click to enlarge graph" button in the problem window or click the pop out button associated with the graph to view the interactive graph in an enlarged popup window. Alternatively, click the graph to activate the graphing palette and work on the graph in the problem window, using the Zoom In / Zoom Out magnifying glass buttons associated with the graph to change the size of the graph.

To add a line, parabola, or circle to the graph, first click the correct button in the graphing palette. Then click the locations on the graph where the control points should be placed. Notice that the coordinates of the current selected point are shown below the graph.

To update a graphed line or curve to be dashed, select the object by clicking on it, and then click the solid/dashed selector

button  located on the graph palette.

To shade a region of the graph, click the region shading button  on the graph palette to select the region shading tool. Place the shading bucket in the proper location relative to the object(s) you plotted. You only need to place one shading bucket per shaded region.

If you need to change an object on the graph, you can select it, delete it, and try again. Alternatively, you can click on any individual point and drag it to a new location, or you can click on another part of the object, and drag the entire object to a new location.

Careful: Delete any extra lines, parabolas, circles, or shaded regions from the graph before clicking "Check Answer." In order for your answer to be correct, you should graph each requested item only **one** time, and you should not have any extra items on the graph.


Always be sure to read the special graphing instructions that appear above the "Click to enlarge graph" button, explaining any special requirements the graph might have. If these instructions ask you to use specific points in your graph, you must plot these points when creating the graph, or your answer will not be counted as correct.

9. Some questions supply a **data set**, which must be used in order to answer the question.

Data		
4	8	9
5	2	7
7	5	8


You can copy the data set into another program, such as a spreadsheet or a statistical software program, to perform calculations with the numbers in the given data set.

⁵ Click the icon to view instructions for copying a data set into another program.

Add the numbers in the data set either by hand or by using the copy icon  to copy the data into a program which can perform the calculation for you.

The result of adding the numbers in the given data set is _____.

5: Data Set Copying Instructions

When a data set appears in a question, there will also be an icon, usually at the top right of the data set, that can be used to copy the data into another program for calculations. To copy the data set, click the  icon near the data set. You can then choose to open the data in StatCrunch or Excel (if those options are available for your course), or you can copy the data to your clipboard using the copy data popup.

If the data does not paste into the statistical software program properly, try choosing one of the other delimiter options from the copy data popup, and then highlight and copy the data again.

Note: In some cases, the data will be copied into the other program in a different format (for example, in a single column) for ease of use.

10. Some questions make use of the **Interactive Graphing Tool** in order to draw a parabola using two points.

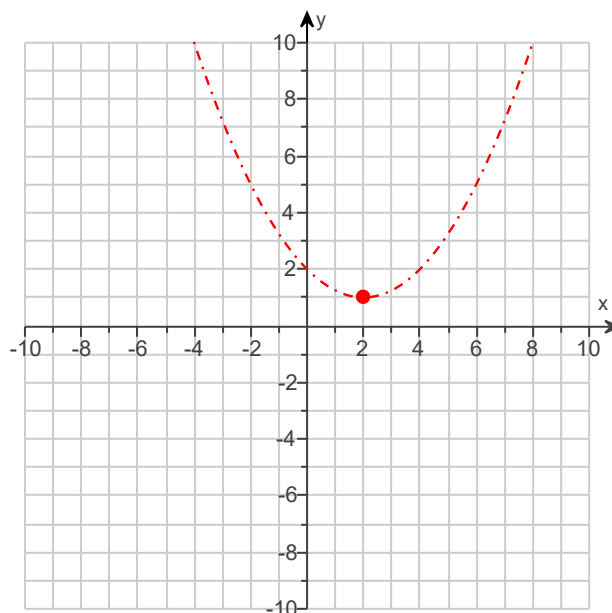
⁶ Click the icon to view instructions for the Interactive Graphing Tool.

Draw a solid vertical parabola overlaying the dashed parabola on the graph.



Use the vertical parabola tool button on the graphing palette to draw a solid vertical parabola. Place the first point at the vertex of the parabola, shown as the solid dot on the graph, and place the second point at another location on the parabola, shown as the dashed curve on the graph.

Careful: Be sure to use a second point that is exactly on the parabola, causing the dashed curve to be completely covered.



6: Interactive Graphing Tool Instructions

You can use the "Click to enlarge graph" button in the problem window or click the pop out button associated with the graph to view the interactive graph in an enlarged popup window. Alternatively, click the graph to activate the graphing palette and work on the graph in the problem window, using the Zoom In / Zoom Out magnifying glass buttons associated with the graph to change the size of the graph.

To add a line, parabola, circle, or shaded region to the graph, first click the correct button in the graphing palette. Then click the locations on the graph where the control points should be placed. Notice that the coordinates of the current selected point are shown below the graph.

If you need to change the graph, you can select it, delete it, and try again. Alternatively, you can click on any individual point and drag it to a new location, or you can click on another part of the object, and drag the entire object to a new location.

Careful: Delete any extra lines, parabolas, circles, or shaded regions from the graph before clicking "Check Answer." In order for your answer to be correct, you should graph each requested item only **one** time, and you should not have any extra items on the graph.

Always be sure to read the special graphing instructions that appear above the "Click to enlarge graph" button, explaining any special requirements the graph might have. If these instructions ask you to use specific points in your graph, you must plot these points when creating the graph, or your answer will not be counted as correct.

11. Some questions make use of the **Interactive Graphing Tool** in order to draw a circle using two points.

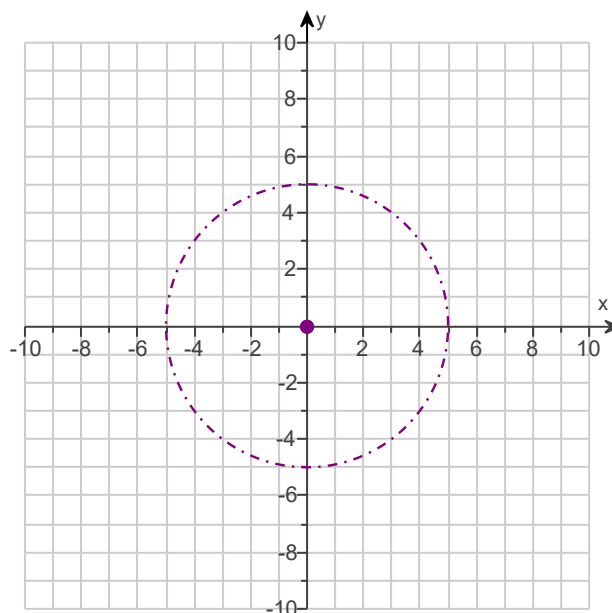
⁷ Click the icon to view instructions for the Interactive Graphing Tool.

Draw a solid circle overlaying the dashed circle on the graph.



Use the circle tool button on the graphing palette to draw a solid circle. Place the first point at the center of the circle, shown as the solid dot on the graph, and place the second point on the circle, shown as a dashed curve on the graph.

Careful: Be sure to use a second point that is exactly on the graph of the circle.



7: Interactive Graphing Tool Instructions

You can use the "Click to enlarge graph" button in the problem window or click the pop out button associated with the graph to view the interactive graph in an enlarged popup window. Alternatively, click the graph to activate the graphing palette and work on the graph in the problem window, using the Zoom In / Zoom Out magnifying glass buttons associated with the graph to change the size of the graph.

To add a line, parabola, circle, or shaded region to the graph, first click the correct button in the graphing palette. Then click the locations on the graph where the control points should be placed. Notice that the coordinates of the current selected point are shown below the graph.


If you need to change the graph, you can select it, delete it, and try again. Alternatively, you can click on any individual point and drag it to a new location, or you can click on another part of the object, and drag the entire object to a new location.

Careful: Delete any extra lines, parabolas, circles, or shaded regions from the graph before clicking "Check Answer." In order for your answer to be correct, you should graph each requested item only **one** time, and you should not have any extra items on the graph.


Always be sure to read the special graphing instructions that appear above the "Click to enlarge graph" button, explaining any special requirements the graph might have. If these instructions ask you to use specific points in your graph, you must plot these points when creating the graph, or your answer will not be counted as correct.

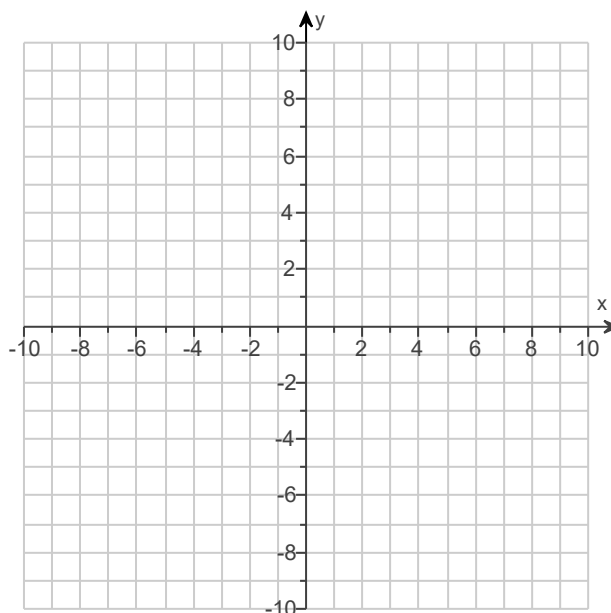
12. Some questions make use of the **Interactive Graphing Tool** to draw a basic graph and then use interactions to edit special graph values in order to complete the graph.
⁸ Click the icon to view instructions for the Interactive Graphing Tool.



Use the x-cubed tool  to graph the x-cubed function. Update the function to have a Vertical Stretch of 3, a Horizontal Stretch of 1, a Vertical Shift of 0, a Horizontal Shift of 5, and a Reflection over the x-axis.



Use the x-cubed tool button  on the graphing palette to place the function on the graph. Then update the Vertical Stretch, Horizontal Stretch, Vertical Shift, Horizontal Shift, and Reflect over x-axis interactions to have the values noted above.



8: Interactive Graphing Tool Instructions

You can use the "Click to enlarge graph" button in the problem window or click the pop out button associated with the graph to view the interactive graph in an enlarged popup window. Alternatively, click the graph to activate the graphing palette and work on the graph in the problem window, using the Zoom In / Zoom Out magnifying glass buttons associated with the graph to change the size of the graph.

To add a function to the graph, first choose the correct button in the graphing palette. Click the button, then click the graph to place the function at the default position. Notice that once the function is added to the graph, there will be answer box, slider, and/or checkbox controls shown near the graph.

If you need to change the graph, you can select it, delete it, and try again. Alternatively, you can click a function on the graph to select it, then use the answer box, slider, and/or checkbox controls to update the displayed graph.

Careful: Delete any extra functions from the graph before clicking "Check Answer." In order for your answer to be correct, you should graph each requested item only **one** time, and you should not have any extra items on the graph.

Always be sure to read the special graphing instructions that appear above the "Click to enlarge graph" button, explaining any special requirements the graph might have.

13. Choose the correct phrase to complete the sentence.

To raise a product to a power, _____.

To raise a product to a power, (1) _____

- (1) ☐ raise each factor to that power.
☐ square the numerator and square the denominator.
☐ multiply the exponents and leave the base unchanged.
☐ keep the base and add the exponents.

14. Choose the correct phrase to complete the sentence.

To raise a power to a power, _____.

To raise a power to a power, (1) _____

- (1) ☐ raise each factor to that power.
☐ square the numerator and square the denominator.
☐ multiply the exponents and leave the base unchanged.
☐ keep the base and add the exponents.
-

15. Choose the correct phrase to complete the sentence.

Any nonzero number raised to the 0 power _____.

Any nonzero number raised to the 0 power (1) _____

- (1) ☐ is one.
☐ is zero.
☐ is number itself.
☐ is square of number.
-

16. Choose the correct phrase to complete the sentence.

To square a fraction, _____.

To square a fraction, (1) _____

- (1) ☐ raise each factor to that power.
☐ keep the base and add the exponents.
☐ multiply the exponents and leave the base unchanged.
☐ square the numerator and square the denominator.
-

17. Identify the base and the exponent.

$$(4x)^2$$

The base is _____.

The exponent in the expression is _____. (Type an integer or a fraction.)

18. Identify the base and the exponent.

$$2x^7$$

The base is _____.

The exponent is _____. (Type an integer or a fraction.)

19. Multiply and simplify.

$$h^6 \cdot h^7$$

The answer is $h^6 \cdot h^7 =$ _____.

(Type your answer as one base to a nonnegative power.)

20. Simplify the expression.

$$x^{11} \cdot x$$

$$x^{11} \cdot x = \underline{\hspace{2cm}}$$

(Simplify your answer.)

21. Simplify.

$$(x+5)^4(x+5)^3$$

$$(x+5)^4(x+5)^3 = \underline{\hspace{2cm}}$$

(Express your answer as one base to a power.)

22. Simplify.

$$(ab^7)(a^5b^8)$$

$$(ab^7)(a^5b^8) = \underline{\hspace{2cm}}$$

23. Divide and simplify.

$$\frac{2^9}{2^3}$$

$$\frac{2^9}{2^3} = \underline{\hspace{2cm}}$$

(Type your answer using exponential notation. Use positive exponents only.)

24. Simplify. Assume that no denominator is 0.

$$\frac{y^6}{y}$$

$$\frac{y^6}{y} = \underline{\hspace{2cm}}$$

25. Simplify. Assume that no denominator is 0.

$$\frac{(v+r)^{11}}{(v+r)^4}$$

$$\frac{(v+r)^{11}}{(v+r)^4} = \underline{\hspace{2cm}}$$

(Type exponential notation with positive exponents.)

26. Divide and simplify.

$$\frac{54x^{27}y^5}{9x^2y}$$

Choose the correct answer below.

- ☐ A. $6x^{29}y^6$
- ☐ B. $6x^{25}y^4$
- ☐ C. $54x^{25}y^5$
- ☐ D. $6x^{13.5}y^5$

27. Simplify. Assume that no denominator is 0.

$$\frac{p^8q^7}{p^0q^5}$$

$$\frac{p^8q^7}{p^0q^5} = \underline{\hspace{2cm}}$$

28. Simplify.

$$7^0 + 6^0$$

$$7^0 + 6^0 = \underline{\hspace{2cm}}$$

29. Simplify.

$$(x^6)^2$$

$$(x^6)^2 = \underline{\hspace{2cm}} \text{ (Simplify your answer. Use positive exponents only.)}$$

30. Simplify. Answers should not contain parentheses.

$$(-3a)^2$$

$$(-3a)^2 = \underline{\hspace{2cm}}$$

31. Simplify.

$$(-4a)^5$$

$$(-4a)^5 = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only. Use integers or fractions for any numbers in the expression.)

32. Simplify using the laws of exponents.

$$(m^2n)^9$$

$$(m^2n)^9 = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only.)

33. Simplify.

$$(2x^5)^3(9x^6)$$

$$(2x^5)^3(9x^6) = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only.)

34. Simplify the following expression using the quotients-to-powers rule. If possible, evaluate exponential expressions.

$$\left(\frac{x}{3}\right)^4$$

$$\left(\frac{x}{3}\right)^4 = \underline{\hspace{2cm}}$$

(Simplify your answer. Use integers or fractions for any numbers in the expression. Use positive exponents only.)

35. Simplify.

$$\left(\frac{p^8 f}{s}\right)^7$$

$$\left(\frac{p^8 f}{s}\right)^7 = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only.)

36. Simplify. Assume that the denominator is not zero and 0^0 is not considered.

$$\left(\frac{8a^9 b^7}{7c^3}\right)^0$$

$$\left(\frac{8a^9 b^7}{7c^3}\right)^0 = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only. Use integers or fractions for any numbers in the expression.)

37. Solve. Clear fractions or decimals first.

$$\frac{4}{3} + \frac{2}{3}x = \frac{32}{15} + \frac{8}{5}x + \frac{4}{5}$$

The solution is $x = \underline{\hspace{2cm}}$.

(Type an integer or a simplified fraction.)

38. Solve.

$$5(3x - 2) = 35$$

The solution is $x = \underline{\hspace{2cm}}$.

(Simplify your answer. Type an integer or a decimal.)

39. Classify the following statement as either true or false.

A negative exponent indicates a reciprocal.

Choose the correct answer below.

- ☐ True
☐ False

40. Find the equivalent expression.

$$\left(\frac{x^7}{y^4}\right)^{-3}$$

$$\left(\frac{x^7}{y^4}\right)^{-3} = \underline{\hspace{2cm}} \text{ (Use positive exponents only.)}$$

41. Find the equivalent expression.

$$\left(\frac{y^{-4}}{x^{-2}}\right)^{-3}$$

$$\left(\frac{y^{-4}}{x^{-2}}\right)^{-3} = \underline{\hspace{2cm}} \text{ (Use positive exponents only.)}$$

42. Simplify the following expression.

$$6^{-4}$$

$$6^{-4} = \underline{\hspace{2cm}} \text{ (Type a simplified fraction.)}$$

43. Write the expression without using negative exponents.

$$6^{-1}$$

Which expression is written with positive exponents and represents 6^{-1} ?

- ☐ A. $-\frac{1}{6}$
- ☐ B. -6
- ☐ C. 6
- ☐ D. $\frac{1}{6}$
-

44. Express using a negative exponent.

$$\frac{1}{5^6}$$

$$\frac{1}{5^6} = \underline{\hspace{2cm}}$$

(Type a negative exponent. Do not simplify.)

45. Express using negative exponents.

$$\frac{1}{d}$$

$$\frac{1}{d} = \underline{\hspace{2cm}}$$

46. Multiply and simplify.

$$2^{-5} \cdot 2^9$$

$$2^{-5} \cdot 2^9 = \underline{\hspace{2cm}}$$

(Type exponential notation with positive exponents.)

47. First use the product rule to multiply the terms and then rewrite the expression using positive exponents.

$$p^{-9} \cdot p^{-3}$$

$$p^{-9} \cdot p^{-3} = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only.)

48. Simplify.

$$(a^{-3})^5$$

$$(a^{-3})^5 = \underline{\hspace{2cm}} \quad (\text{Use positive exponents only.})$$

49. Divide and simplify.

$$\frac{u^3}{u^{-1}}$$

$$\frac{u^3}{u^{-1}} = \underline{\hspace{2cm}}$$

(Simplify your answer. Type exponential notation using positive exponents.)

50. Simplify. Do not use negative exponents in the answer.

$$\frac{2x^4}{x}$$

$$\frac{2x^4}{x} = \underline{\hspace{2cm}}$$

(Use integers or fractions for any numbers in the expression. Simplify your answer.)

51. Simplify.

$$(a^4 c^8)^{-6}$$

$$(a^4 c^8)^{-6} = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only.)

52. Simplify.

$$\left(\frac{b^4}{5}\right)^{-3}$$

$$\left(\frac{b^4}{5}\right)^{-3} = \underline{\hspace{2cm}}$$

(Simplify your answer. Use positive exponents only.)

53. Simplify. Do not use negative exponents in the answer.

$$\left(\frac{7x^{-6}}{6y^{-4}z}\right)^0$$

$$\left(\frac{7x^{-6}}{6y^{-4}z}\right)^0 = \underline{\hspace{2cm}}$$

54. Simplify. Do not use negative exponents in the answer.

$$\frac{-6x^4 y^{-2}}{-3x^7 y^{-4}}$$

$$\frac{-6x^4 y^{-2}}{-3x^7 y^{-4}} = \underline{\hspace{2cm}}$$

(Simplify your answer. Use integers or fractions for any numbers in the expression. Use positive exponents only.)

55. Simplify. Do not use negative exponents in the answer.

$$\frac{15x^{-4}yz^5}{18x^8y^{-7}z^{-2}}$$

$$\frac{15x^{-4}yz^5}{18x^8y^{-7}z^{-2}} = \underline{\hspace{2cm}}$$

(Simplify your answer. Use integers or fractions for any numbers in the expression. Use positive exponents only.)

56. Express the number in decimal form (without exponents).

$$6.19 \times 10^6$$

The answer is .

57. Express the following number in decimal notation.

$$6.81 \times 10^{-6}$$

$$6.81 \times 10^{-6} = \underline{\hspace{2cm}}$$

58. Express the following number in scientific notation.

$$690,000$$

$$690,000 = \underline{\hspace{2cm}}$$

(Use the multiplication symbol in the math palette as needed.)

59. Express the number 0.000727 in scientific notation.

$$0.000727 = \underline{\hspace{2cm}}$$

(Use scientific notation. Use the multiplication symbol in the math palette as needed.)

60. Multiply and write the result in scientific notation.

$$(3 \times 10^6)(3 \times 10^3)$$

$$(3 \times 10^6)(3 \times 10^3) = \underline{\hspace{2cm}}$$

(Simplify your answer. Use scientific notation. Use the multiplication symbol in the math palette as needed.)

61. Identify the most appropriate algebraic expression for the description below.

 A polynomial with four terms

(1) A polynomial with four terms

- (1) ☐ $3t^2 + 4t + 7$ ☐ $4t - 2t^7$
☐ $8t - 4t^5$ ☐ $5x^4 + 3x^3 - 4x + 7$
☐ $\frac{3}{x} - 6x^2 + 9$
☐ $8x^3 + \frac{2}{x^2}$

62. Identify the most appropriate algebraic expression for the description below.

_____ A trinomial written in descending order

(1) _____ A trinomial written in descending order

- (1) ☐ $\frac{3}{x} - 6x^2 + 9$ ☐ $3t^2 + 4t + 7$
☐ $4t - 2t^7$ ☐ $8x^3 + \frac{2}{x^2}$
☐ $5x^4 + 3x^3 - 4x + 7$
☐ $8t - 4t^5$

63. Identify the most appropriate algebraic expression for the description below.

_____ A binomial with degree 7

(1) _____ A binomial with degree 7

- (1) ☐ $8x^3 + \frac{2}{x^2}$ ☐ $4t - 2t^7$
☐ $5x^4 + 3x^3 - 4x + 7$ ☐ $\frac{3}{x} - 6x^2 + 9$
☐ $3t^2 + 4t + 7$
☐ $8t - 4t^5$

64. Identify the most appropriate algebraic expression for the description below.

_____ An expression with two terms that is not a binomial

(1) _____ An expression with two terms that is not a binomial

- (1) ☐ $3t^2 + 4t + 7$ ☐ $\frac{3}{x} - 6x^2 + 9$
☐ $8x^3 + \frac{2}{x^2}$ ☐ $5x^4 + 3x^3 - 4x + 7$
☐ $8t - 4t^5$
☐ $4t - 2t^7$

65. Identify the terms of the following polynomial.

$$4x^5 - 15x^4 + 2x + 5$$

The terms of the polynomial are _____.
 (Use a comma to separate answers as needed.)

66. Classify the polynomial as a monomial, binomial, trinomial, or a polynomial with no special name.

$$x^2 - 4x + 4$$

This polynomial is

- ☐ A. a binomial.
☐ B. a monomial.
☐ C. a trinomial.
☐ D. a polynomial with no special name.

67. Classify the polynomial as a monomial, binomial, trinomial, or a polynomial with no special name.

$$x^3 - 3x^2 + 7x - 7$$

This polynomial is

- ☐ A. a monomial.
☐ B. a trinomial.
☐ C. a binomial.
☐ D. a polynomial with no special name.

68. Classify the polynomial as a monomial, a binomial, a trinomial, or a polynomial with no special name.

$$y + 20$$

Classify the given polynomial. Choose the correct answer below.

- ☐ a binomial
☐ no special name
☐ a trinomial
☐ a monomial

69. Classify the polynomial as a monomial, binomial, trinomial, a polynomial with no special name.

$$66$$

This polynomial is

- ☐ A. a binomial.
☐ B. a trinomial.
☐ C. a monomial.
☐ D. a polynomial with no special name.

70. Combine like terms.

$$9x^7 - 8x + 6x + 7x^6$$

$$9x^7 - 8x + 6x + 7x^6 = \underline{\hspace{2cm}} \text{ (Use descending order.)}$$

71. Combine like terms.

$$-3x + 5x^3 - 5x + 8x^3 + 8$$

$$-3x + 5x^3 - 5x + 8x^3 + 8 = \underline{\hspace{2cm}} \text{ (Use descending order.)}$$

72. Evaluate the polynomial for $x = 3$ and for $x = -3$.

$$3x^2 - 4x + 8$$

The value of $3x^2 - 4x + 8$ is _____ when x is 3.
(Simplify your answer. Type an integer or a fraction.)

The value of $3x^2 - 4x + 8$ is _____ when x is -3 .
(Simplify your answer. Type an integer or a fraction.)

73. Add.

$$(7x + 2) + (x + 4)$$

$$(7x + 2) + (x + 4) = \text{_____} \text{ (Simplify your answer.)}$$

74. Add.

$$(8x^2 - 2x + 25) + (7x^2 + 9x - 65)$$

The answer is _____.
(Simplify your answer.)

75. Add.

$$(8x^6 + 9x^4 - x^3 + 7x) + (-x^6 + 8x^3 - 3x^2 + 7x^4)$$

$$(8x^6 + 9x^4 - x^3 + 7x) + (-x^6 + 8x^3 - 3x^2 + 7x^4) = \text{_____}$$

(Simplify your answer.)

76. Add.

$$-6y^6 + 6y^3 + 5y - 3$$

$$-2y^3 + 9y + 3$$

The sum is _____.

77. Simplify.

$$-(3x^2 - 8x + 6)$$

$$-(3x^2 - 8x + 6) = \text{_____}$$

78. Simplify.

$$-(3x^4 + 6x^2 + \frac{1}{5}x - 2)$$

$$-(3x^4 + 6x^2 + \frac{1}{5}x - 2) = \text{_____}$$

(Use integers or fractions for any numbers in the expression.)

79. Subtract.

$$(9x + 4) - (3x + 8)$$

The answer is _____.

80. Subtract.

$$(-8x + 2) - (x^2 + x - 5)$$

$$(-8x + 2) - (x^2 + x - 5) = \underline{\hspace{2cm}}$$

(Simplify your answer.)

81. Subtract.

$$(3a^3 + a - 4) - (2 - 4a^3 - 5a^2)$$

$$(3a^3 + a - 4) - (2 - 4a^3 - 5a^2) = \underline{\hspace{2cm}} \text{ (Simplify your answer.)}$$

82. Subtract the following polynomials.

$$(8x^3 - 8x^2 + 9) - (9 - 8x^2 + 8x^3)$$

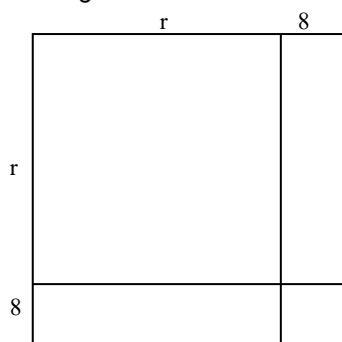
$$(8x^3 - 8x^2 + 9) - (9 - 8x^2 + 8x^3) = \underline{\hspace{2cm}} \text{ (Simplify your answer.)}$$

83. Subtract.

$$\begin{array}{r} (x^2 + 5x + 8) \\ - (x^2 + 3x + 7) \\ \hline \end{array}$$

$$\begin{array}{r} (x^2 + 5x + 8) \\ - (x^2 + 3x + 7) \\ \hline \end{array} \quad \underline{\hspace{2cm}} \text{ (Simplify your answer.)}$$

84. Find two algebraic expressions for the area of the figure. First, regard the figure as one large rectangle, and then regard the figure as a sum of four smaller rectangles.



Regarding the figure as one large rectangle, the algebraic expression for the area of the figure is _____.
(Simplify your answer.)

Regarding the figure as a sum of four smaller rectangles, the algebraic expression for the area of the figure is _____.
(Simplify your answer.)

85. Find the slope-intercept equation for the line with the indicated slope and y-intercept.

Slope $\frac{7}{3}$; y-intercept $(0, -9)$

The equation is _____.

(Type an equation. Type your answer in slope-intercept form. Use integers or fractions for any numbers in the equation. Simplify your answer.)

86. Multiply.

$$(2x^3)(4x^7)$$

The answer is _____.
(Simplify your answer.)

87. Multiply.

$$(4x^3)(2x^7)$$

The answer is _____.
(Simplify your answer.)

88. Simplify the polynomial by combining like terms.

$$9x^2 + 20x^2$$

$$9x^2 + 20x^2 = \text{_____} \text{ (Simplify your answer.)}$$

89. Multiply.

$$(-t^6)(t^7)$$

$$(-t^6)(t^7) = \text{_____}$$

90. Multiply.

$$(-n^5)(n^3)$$

$$(-n^5)(n^3) = \text{_____}$$

91. Multiply.

$$9x(7x + 8)$$

$$9x(7x + 8) = \text{_____} \text{ (Simplify your answer.)}$$

92. Multiply.

$$(x + 8)(x + 6)$$

$$(x + 8)(x + 6) = \text{_____}$$

(Simplify your answer.)

93. Multiply.

$$(x + 4)(x - 2)$$

$$(x + 4)(x - 2) = \text{_____}$$

(Simplify your answer.)

94. Multiply.

$$(x + 2)(x - 2)$$

$$(x + 2)(x - 2) = \underline{\hspace{2cm}}$$

(Simplify your answer.)

95. Multiply.

$$(x^2 + x + 9)(x - 9)$$

$$(x^2 + x + 9)(x - 9) = \underline{\hspace{2cm}}$$

(Simplify your answer.)

96. What percent of 44 is 11?

 % (Type an integer or a decimal.)

97. Find the slope of the line containing the given pair of points. If the slope is undefined, state this.

(- 2,3) and (- 14,11)

Select the correct choice below and fill in any answer boxes within your choice.

- ☐ A. The slope is . (Type an integer or a simplified fraction.)
- ☐ B. The slope is undefined.

98. Classify the following statement as either true or false.

FOIL is a memory device for finding the product of two binomials.

Choose the correct answer below.

- ☐ False
- ☐ True

99. Multiply.

$$(y + 4)(y - 5)$$

The answer is .

(Simplify your answer.)

100. Multiply.

$$(6x - 4)(x + 9)$$

The answer is .

(Type the terms in descending order.)

101. Multiply using the rule for the square of a binomial.

$$(x - 5)^2$$

$$(x - 5)^2 = \underline{\hspace{2cm}}$$

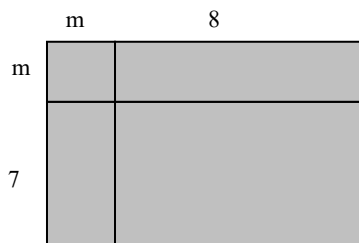
102. Multiply using the rule for the square of a binomial.

$$(4x + 3)^2$$

$$(4x + 3)^2 = \underline{\hspace{2cm}}$$

103. Find the total area of all shaded rectangles.

The total area of all shaded rectangles is square units.



104. Multiply.

$$(6a - b)(6a + b)$$

The answer is .

105. Multiply.

$$(m + 8n)^2$$

$$(m + 8n)^2 = \underline{\hspace{2cm}}$$

(Simplify your answer.)

106. Simplify.

$$5(-7)^2 + 6 \div (-3)$$

$$5(-7)^2 + 6 \div (-3) = \underline{\hspace{2cm}}$$

107. Choose the appropriate label for the expression $x - 3$ from the division shown below.

$$\begin{array}{r} x + 2 \\ x - 3 \overline{) x^2 - x + 9} \\ \underline{-(x^2 - 3x)} \\ (2x + 9) \\ \underline{-(2x - 6)} \\ 15 \end{array}$$

The polynomial $x - 3$ is the (1)

- (1) ☐ remainder.
☐ quotient.
☐ dividend.
☐ divisor.

108. Choose the appropriate label for the expression $x^2 - x + 9$ from the division shown below.

$$\begin{array}{r}
 x + 2 \\
 x - 3 \overline{) x^2 - x + 9} \\
 \underline{-(x^2 - 3x)} \\
 (2x + 9) \\
 \underline{-(2x - 6)} \\
 15
 \end{array}$$

The polynomial $x^2 - x + 9$ is the (1) _____

- (1) ☐ quotient.
☐ dividend.
☐ remainder.
☐ divisor.

109. Divide the polynomial by the monomial. Check the answer by showing that the product of the divisor and the quotient is the dividend.

$$\frac{6x^4 + 27x^3}{3}$$

$$\frac{6x^4 + 27x^3}{3} = \underline{\hspace{2cm}} \text{ (Simplify your answer.)}$$

110. Divide.

$$(45x^7 - 27x^6 + 27x) \div 9x$$

The answer is _____.
 (Simplify your answer.)

111. Perform the division.

$$\frac{6a^5 - 3a^4 + 9}{3a}$$

$$\frac{6a^5 - 3a^4 + 9}{3a} = \underline{\hspace{2cm}}$$

(Simplify your answer.)

112. Find the quotient.

$$\frac{54v^7d^8 - 54v^5d^6 + 48v^3d^4}{6v^3d}$$

The quotient is

_____.

113. Divide.

$$(x^2 - 13x + 42) \div (x - 7)$$

$$(x^2 - 13x + 42) \div (x - 7) = \underline{\hspace{2cm}}$$

114. Divide and check.

$$(v^2 - 2v - 35) \div (v + 3)$$

$$(v^2 - 2v - 35) \div (v + 3) = \underline{\hspace{2cm}}$$

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

115. Find the quotient.

$$\frac{x^3 + 216}{x + 6}$$

$$\frac{x^3 + 216}{x + 6} = \underline{\hspace{2cm}}$$

(Simplify your answer.)

116. Graph the linear equation using the slope and y-intercept.

$$y = -\frac{1}{3}x + 4$$

Graph the equation.

