

Student: [REDACTED]
Date: 3/6/16
Time: 4:14 PM

Instructor: Tech Support, [REDACTED] Assignment: Unit VIII Homework
[REDACTED]
Course: MAT1302-14A-4B16-S1
Book: Bittinger: Elementary Algebra,
Concepts and Applications, 9e

52. Factor completely.

$$5s^2 - 7s - 6$$

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

- ☐ A. $5s^2 - 7s - 6 = \blacksquare$
☐ B. The expression is prime.

53. Factor completely. If the polynomial is prime, state this.

$$4 + 14x^2 - 17x$$

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

- ☐ A. $4 + 14x^2 - 17x = \blacksquare$
☐ B. The polynomial is prime.

54. Factor completely.

$$b^2 + 16b + 64$$

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

- ☐ A. $b^2 + 16b + 64 = \blacksquare$
☐ B. The polynomial is prime.

55. Factor completely.

$$v^2 - 64$$

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

- ☐ A. $v^2 - 64 = \blacksquare$
☐ B. The polynomial is prime.

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Instructor: Tech Support, Dee Wenzler,
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Book: Bittinger: Elementary Algebra,
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Assignment: Unit VIII Homework

56. Factor completely.

$$s^4 - 81$$

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

☐ A. $s^4 - 81 = \blacksquare$

☐ B. The polynomial is prime.

57. Factor completely.

$$b^2 + 49$$

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

☐ A. $b^2 + 49 = \blacksquare$

☐ B. The polynomial is prime.

58. Factor completely. If a polynomial is prime, state this.

$$5x^5 - 405x$$

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

☐ A. $5x^5 - 405x = \blacksquare$

☐ B. The polynomial is prime.

59. Solve.

$$t^2 + 4t - 45 = 0$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ A. The solution(s) is/are $t = \blacksquare$.
(Type an integer or a simplified fraction.
Use a comma to separate answers as
needed. Type each solution only once.)

☐ B. There is no solution.

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60. Solve by factoring and using the principle of zero products.

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

Select the correct choice below and, if necessary, fill in the answer box within your choice.

☐ A. The solution(s) is/are $x =$.

(Use a comma to separate answers as needed. Type each solution only once.)

☐ B. There is no solution.

61. The front of an A-frame cabin in a national park is in the shape of a triangle, with an area of 315 ft^2 . If the height is 1 ft less than twice the base, find the base and the height of the front of the cabin.

The base of the front of the cabin is

ft².
ft.
ft³.

The height of the front of the cabin is

ft³.
ft.
ft².

62. The shortest side of a right triangle measures 7 m. The lengths of the other two sides are consecutive integers. Find the lengths of the other two sides.

The length of the second side (shorter than the third side) is

m³.
m².
m.

The length of the third side is

m².
m.
m³.

63. Simplify by removing factors of 1. $\frac{p^2 - 4}{p^2 - 4p + 4}$

The simplified form is .

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Natalie [redacted]
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Assignment: Unit VIII Homework

64. Multiply and simplify.

$$\frac{x^2 + 5x - 14}{x^2 + 8x - 20} \cdot \frac{x^2 - 7x - 30}{x^2 + 10x + 21}$$

The simplified product is .

(Simplify your answer.)

65. Divide and, if possible, simplify.

$$\frac{a - 5}{a + 4} \div \frac{5 - a}{16 + a^2}$$

$$\frac{a - 5}{a + 4} \div \frac{5 - a}{16 + a^2} = \text{}$$

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

66. Perform the indicated operation. Simplify, if possible.

$$\frac{3x - 28}{x^2 + 4x - 5} - \frac{8x - 3}{x^2 + 4x - 5}$$

$$\frac{3x - 28}{x^2 + 4x - 5} - \frac{8x - 3}{x^2 + 4x - 5} = \text{}$$

67. Subtract. Simplify if possible.

$$\frac{2}{9y^3} - \frac{1}{6y^2}$$

The difference is .

68. Add.

$$\frac{9}{w + 4} + \frac{4}{7w}$$

$$\frac{9}{w + 4} + \frac{4}{7w} = \text{} \text{ (Simplify your answer.)}$$

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69. Perform the indicated operation. Simplify, if possible.

$$\frac{2z}{z^2 - 4z + 4} + \frac{2}{z^2 + 4z - 12}$$

$$\frac{2z}{z^2 - 4z + 4} + \frac{2}{z^2 + 4z - 12} = \square$$

(Simplify your answer.)

70. Simplify.

$$\frac{x+6}{x-2}$$

$$\frac{x-2}{x+4}$$

$$\frac{x-5}{x-5}$$

$$\frac{x+6}{x-2}$$

$$\frac{x-2}{x+4}$$

$$\frac{x-5}{x-5}$$

$$\frac{x+6}{x-2}$$

$$\frac{x-2}{x+4}$$

$$\frac{x-5}{x-5}$$

71. Solve the following equation for the variable x.

$$\frac{5}{x-1} + \frac{1}{x+1} = \frac{-3x}{x^2-1}$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The solution is $x = \square$.
(Simplify your answer. Type an integer or a fraction.)
☐ B. There is no solution.

72. Jack usually mows his lawn in 4 hours. Marilyn can mow the same yard in 6 hours. How much time would it take for them to mow the lawn together?

They could mow the lawn in hours if they worked together.
(Simplify your answer.)

73. A sample of 149 firecrackers contained 3 duds. How many duds would you expect in a sample of 1639 firecrackers?

How many duds would you expect in a sample of 1639 firecrackers?

duds

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74. Solve the system of linear equations by graphing.

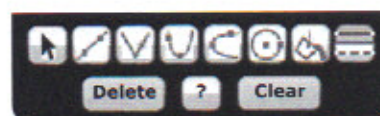
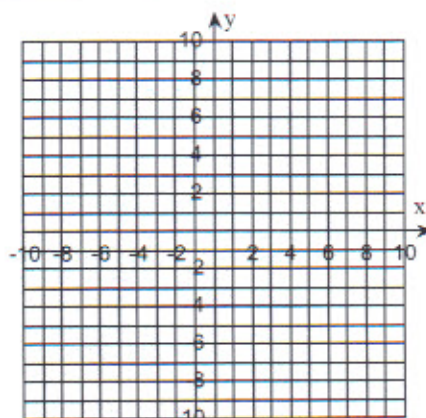
$$\begin{cases} x - 4y = -8 \\ 3x - 2y = 6 \end{cases}$$

Use the graphing tool to graph the system.



What is the solution of the system of equations?
Select the correct choice below and, if necessary,
fill in the answer box to complete your choice.

- ☐ A. The solution is . (Type an ordered pair.)
☐ B. There are infinitely many solutions.
☐ C. There is no solution.



75. Solve the system using the substitution method.

$$\begin{aligned} x - 3y &= 4 \\ 3x - 12 &= 9y \end{aligned}$$

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

- ☐ A. The solution is . (Type an ordered pair.)
☐ B. There is no solution.
☐ C. There are infinitely many solutions.

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Book: Bittinger: Elementary Algebra,
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76. Solve the system of equations using the substitution method.

$$x - y = 1$$

$$5x + 2y = -16$$

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

- ☐ A. The solution of the system is . (Type an ordered pair.)
☐ B. There are infinitely many solutions.
☐ C. There is no solution.

77. Solve using a system of equations.

On average, Americans spend 17.5 hr per month watching videos on both channel 1 and 2. They spend 4.5 more hours watching videos on channel 1 than they do on channel 2. How much time do they spend on each?

They spend hr per month on channel 1.

They spend hr per month on channel 2.

(Type integers or decimals.)

78. Solve using the elimination method.

$$-6x - 8y = 8$$

$$3x + 4y = 7$$

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

- ☐ A. The solution of the system is . (Type an ordered pair.)
☐ B. There are infinitely many solutions.
☐ C. There is no solution.

79. The Jurassic Zoo charges \$5 for each adult admission and \$3 for each child. The total bill for the 80 people from a school trip was \$282. How many adults and how many children went to the zoo?

There were adults and children on the trip.

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80. A store mixes Brazilian coffee worth \$12 per kilogram and Turkish coffee worth \$14 per kilogram. The mixture is to sell for \$13 per kilogram. Find how much of each should be used to make a 336-kilogram mixture.

How many kilograms of the Brazilian coffee should be in the mixture? kg

How many kilograms of the Turkish coffee should be in the mixture? kg

81. Simplify. Assume that the variable is nonnegative.

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

The answer is .

82. Multiply and simplify. Assume that the variables represent positive real numbers.

$$\sqrt{4m^5n^5} \sqrt{2mn^2}$$

$$\sqrt{4m^5n^5} \sqrt{2mn^2} = \text{}$$

83. Divide and simplify. Assume that all expressions under radicals represent nonnegative numbers.

$$\frac{\sqrt{90n^{13}}}{\sqrt{10n}}$$

$$\frac{\sqrt{90n^{13}}}{\sqrt{10n}} = \text{}$$

84. Rationalize the denominator.

$$\frac{\sqrt{2}}{\sqrt{27}}$$

The answer is .

(Type an exact answer, using radicals as needed.)

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85. Add or subtract. Simplify by collecting like radical terms, if possible.

$$4\sqrt{32} + \sqrt{18} - \sqrt{50}$$

The answer is .

(Type an exact answer, using radicals as needed.)

86. Multiply.

$$\sqrt{5}(\sqrt{2} - \sqrt{10})$$

$$\sqrt{5}(\sqrt{2} - \sqrt{10}) = \text{}$$

(Simplify your answer. Type an exact answer, using radicals as needed.)

87. Solve.

$$\sqrt{7y+4} = \sqrt{6y+10}$$

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

☐ A. The solution(s) is/are $y = \text{}$.

(Simplify your answer. Type an integer or a fraction. Use a comma to separate answers as needed.)

☐ B. There is no solution.

88. Solve.

$$\sqrt{x^2+23} - x + 5 = 0$$

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

☐ A. The solution(s) is/are $x = \text{}$. (Use a comma to separate answers as needed as needed.)

☐ B. There is no solution.

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89. Do not forget to make a drawing. Give an exact answer and an approximation to three decimal places. A new water pipe is being prepared so that it will run diagonally under a kitchen floor. If the kitchen is 8 ft wide and 20 ft long, how long should the pipe be?

The exact length of the pipe is ft.

(Simplify your answer.)

The approximate length of the pipe to three decimal places is ft.

(Round to the nearest thousandth.)

90. Find the following. $\sqrt[4]{16}$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The answer is .
- ☐ B. The root is not a real number.

91. Solve.

$$(x - 2)^2 = 4$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The solution(s) is/are .
- (Simplify your answer. Use a comma to separate answers as needed.)
- ☐ B. There is no solution.

92. Solve.

$$x^2 - 6x + 9 = 81$$

Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

- ☐ A. The solution is $x =$.
- (Use a comma to separate answers as needed. Type each solution only once.)
- ☐ B. There are no real-number solutions.

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93. Solve by completing the square.

$$x^2 + 16x + 57 = 0$$

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

- ☐ A. The solution(s) is/are $x = \square$.
(Simplify your answer. Use a comma to separate answers as needed. Type an exact answer, using radicals as needed.)
- ☐ B. There is no solution.

94. Solve. If no real-number solutions exist, state this.

$$2n^2 - 3n = 1$$

The solutions are $\square$.

(Type an exact answer, using radicals as needed. Use a comma to separate answers as needed.)

95. The area of a right triangle is 35m^2 . One leg is 16.5 meters longer than the other. Find the lengths of the legs.

The legs are $\square$ meters in length.

(Type an integer or a decimal. Use a comma to separate answers as needed.)

96. Solve the following formula for t .

$$M = P(1 + rt)$$

The solution is $t = \square$. (Simplify your answer.)

97. Write the expression as a complex number in the form $a + bi$.

$$7 - \sqrt{-64}$$

$$7 - \sqrt{-64} = \square$$

(Simplify your answer. Type your answer in the form $a + bi$.)

98. Solve.

$$x^2 + 26 = 2x$$

The solution(s) is/are $x = \square$.
 (Simplify your answer. Type your answer in the form $a + bi$. Use a comma to separate answers as needed.)

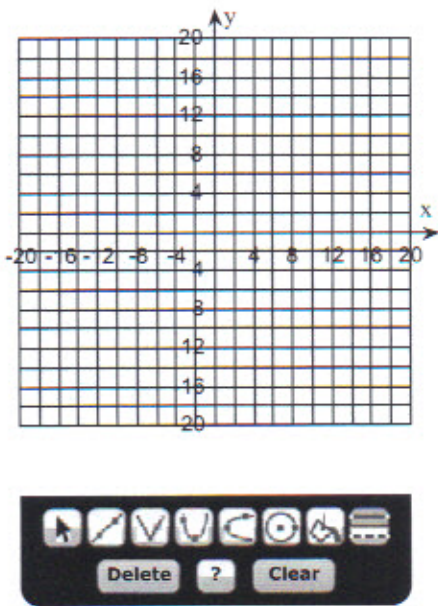
99. Graph the quadratic equation. Then, find the y-intercept.

$$y = 2x^2$$

Use the graphing tool on the right to graph the equation.



What is the y-intercept?
 (0, $\square$)



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100. Graph the equation $y = 2 - 4x - 2x^2$. Find the vertex, the y-intercept, and any x-intercepts.

The vertex is .

(Type an ordered pair. Type an integer or a simplified fraction.)

The y-intercept is .

(Type an ordered pair.)

Find the x-intercept(s). Select the correct choice below and, if necessary, fill in the answer box to complete your choice.

☐ A. The x-intercept(s) is/are .

(Type an ordered pair. Use a comma to separate answers as needed. Type an integer or a decimal. Round to three decimal places as needed.)

☐ B. There are no x-intercepts.

Use the graphing tool to graph the equation.

