

MAT 0018 PREALGEBRA FINAL EXAM REVIEW

NOTE: On the MAT 0018 final exam you will be asked to complete the first half of the exam without a calculator and the second half with a calculator. Therefore, when completing this review packet, you should complete the first part without a calculator and the second part with a calculator.

NON-CALCULATOR PORTION

Directions: Show all supporting work. Always attach the correct units where possible. Reduce all fractions to lowest terms.

Section 1.2

- 1) Write 42,097,823 in word form
- 2) Write the following whole number in standard form:
Nine hundred eighty thousand,
six hundred seventeen

Section 1.3

- 3) Add: $25,735 + 1,946 + 349 + 87$
- 4) Subtract: $76,437 - 8,978$

Section 1.4

- 5) Round 43,874 to the nearest thousand
- 6) Round 231,468,672 to the nearest million

Section 1.5

- 7) Multiply: $3,748 \times 43$
- 8) Find the area of a rectangular garden with a length of 42 feet and width of 37 feet.

Section 1.6

- 9) Divide: $5684 \div 14$
- 10) Divide: $73,753 \div 801$

Section 1.7

- 11) $4^2(9-7) + (5-2)^3$
- 12) $10^2 \div 5 \times 2 - 1^5$

Section 1.8

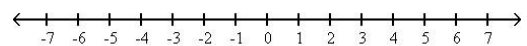
- 13) Evaluate $\frac{2x-1}{y}$
when $x = 5$ and $y = 3$
- 14) Evaluate $3x + 7xy$ when $x = 2$
and $y = 4$

Section 2.1

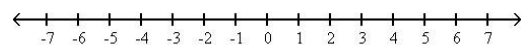
For numbers 15 and 16, Insert $>$, $<$ or $=$ between each pair of numbers to make a true statement.

- 15) a) $|-42|$ _____ $|42|$
b) $-(-12)$ _____ $|-12|$
- 16) a) $|-6|$ _____ $-|6|$
b) (-8) _____ $|-8|$

- 17) Graph $x < -3$ on a number line



- 18) Graph $2 \leq x < 6$ on a number line



Section 2.2

- 19) $-5 + 24 + (-7)$
 20) $-8 + (-23) + 17 + (-7)$

Section 2.3

- 21) $-2 - (-12) + 3 - 7$
 22) $8 + (-5) - 4 - (-14)$

Section 2.4

- 23) $-12(-35)$
 24) $-360 \div 6$

Section 2.5

- 25) Simplify: $(7 - 11)^2 \div (2 - 4)^2$
 26) Evaluate $x^2 + 3x - 1$ when
 $x = -2$

Section 2.6

- 27) Solve and check your solution:
 $y + 7 = 2$
 28) Solve and check your solution:
 $-9x = 81$

Section 3.1

- 29) Simplify the following by
 combining like terms:
 $3x - (5x + 3) + 4$
 30) Simplify the following by
 combining like terms:
 $-(5x + 3) - 2(x - 5) + 13$

Section 3.2

- 31) Solve for x :
 $5x + 30 - 4x - 28 = 10$
 32) Solve for x :
 $12x + 10 = 11(x - 1)$

Section 3.3

- 33) Solve for x : $5x + 1 = 2(3x - 5)$
 34) Solve for x :
 $2 - 3(5x + 2) = 2(3 - 5x)$

Section 3.4

- 35) Translate into an algebraic
 equation and solve. Use x to
 represent "a number."
*Three times the sum of a number
 and five is the same as the sum
 of that number and one.*

Section 4.1

- 36) In a prealgebra class containing
 25 students, there are 14 women.
 a) What fraction of the class
 is female?
 b) What fraction of the class
 is male?

Section 4.2

- 37) Simplify the fraction: $\frac{21}{35}$
 38) Find the prime factorization of
 540. Write in exponential form.

Section 4.3

- 39) Multiply. Write the product in
 simplest form. $-\frac{2}{11} \cdot \frac{33}{42}$
 40) Divide. Write the quotient in
 simplest form. $\frac{2}{3} \div \frac{10}{21}$

Section 4.4

- 41) Add and simplify: $-\frac{5}{14} + \frac{13}{14}$

Section 4.5

42) Add: $\frac{4}{5} + \frac{2}{3}$

43) Subtract: $7 - \frac{3}{4}$

Section 4.6

- 44) Use the order of operations to simplify the following expression:

$$\left(\frac{1}{2} + \frac{1}{3}\right) \div \left(\frac{2}{3} - \frac{1}{12}\right)$$

Section 4.7

- 45) Add and express the answer as a mixed number in simplest form:

$$2\frac{4}{7} + 5\frac{11}{14}$$

- 46) Subtract and express the answer as a mixed number in simplest form:

$$5\frac{1}{5} - 2\frac{13}{15}$$

Section 4.8

- 47) Solve the following equation and simplify:

$$y - \frac{2}{7} = \frac{3}{4}$$

- 48) Solve the following equation and simplify:

$$\frac{3}{4}x = 6$$

Section 5.1

- 49) Write 4.65 in word form.
-
- 50) Round 3.2791 to the nearest hundredth

Section 5.2

- 51) Perform the indicated operations:
-
- $-8.01 + (-9.7) - 12.082$

Section 5.3

- 52) Multiply:
- $(23.45) \cdot (3.5)$

Section 5.4

- 53) Divide using long division:
-
- $188.6 \div 2.3$

Section 5.5

- 54) Simplify the following expression:
- $(5.1 - 4.3)^2 + (.5)^2$

Section 5.6

- 55) Solve the following equation:
-
- $.3x - 7.1 = 80.8$

Section 5.7

- 56) Find Jill's average (mean) test grade if her grades are: 79, 83, 92, 68 and 87. Round the average grade to the nearest whole number.

Section 6.1

- 57) There are 2 black pens and 10 orange pens in a jar.
-
- a. What fraction of the pens is orange?
-
- b. Write the ratio of black pens to orange pens.
-
- 58) The ratio of males to females at Jones High School is 5:4. If there are 800 females that attend Jones, how many males attend?

Section 6.2

- 59) Solve the proportion for the given variable. $\frac{7.8}{13} = \frac{n}{2.6}$

Section 6.3

- 60) Find how far apart Albany and Rochester are in Kilometers if their corresponding points on a map are 15 centimeters apart.
Use 1 centimeter = 30 Kilometers.

Section 6.4

- 61) Evaluate $\sqrt{64}$

- 62) Evaluate $\sqrt{\frac{49}{144}}$

Section 7.1

- 63) Write 1.4% as a decimal
64) Write 8.32 as a percent

Section 7.2

- 65) Solve: What is 20% of 60?
66) Solve: 46 is what percent of 50?

Section 7.3

- 67) Set up a proportion and solve:
What percent of 500 is 125?

Section 7.4

- 68) From 2005 to 2008, the value of a house decreased from \$270,000 to \$195,000. Find the percent decrease of the price of the house. Round answer to the nearest tenth of a percent.

Section 7.5

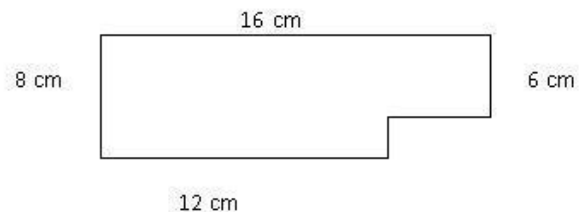
- 69) A \$350.00 suit is on sale for 20% off.
a. Find the amount of discount
b. Find the sale price

Section 7.6

- 70) Victor borrowed \$1,000 at 6% simple interest. How much money will Victor owe after one year.

Section 9.2

- 71) Find the perimeter of the geometric figure below:



Section 9.3

- 72) Which of the following has a greater area? (Use 3.14 for π .)
a) A square with one side measuring 13 inches
b) A circle with a diameter of 14 inches?

Section 9.4

73) Convert 84 in. to ft.
(use 1 ft. = 12 in.)

74) Convert 0.42 km to cm

Section 9.6

77) Convert 9 pints to quarts
(use 1 quart = 2 pints)

78) Convert 1.7 liters to kiloliters

Section 9.5

75) Convert 5 pounds to ounces
(use 1 pound = 16 ounces)

76) Convert 4.9 g to mg

CALCULATOR PORTION

Directions: Calculators may be used on the following problems. However, in order to receive any partial credit on the final exam, you should show all work and state how you are getting your answers. On the final exam, incorrect answers without showing work will receive no credit. Always attach the correct units where possible. Reduce all fractions to lowest terms.

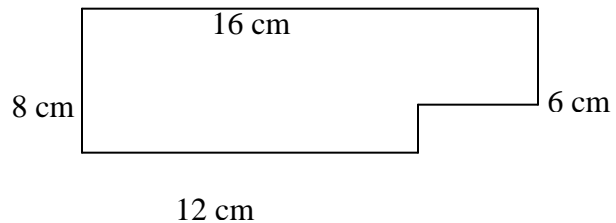
Section 1.3

79) Bob can't decide whether to buy a used Buick or a used Ford. The Buick costs \$3,570 while the Ford costs \$2,750. How much less expensive is the Ford?

80) What is the perimeter of a rectangular lawn that measures 22 meters by 9 meters?

Section 1.5

82) Find the area of the geometric figure below:



83) Billy's car gets 12 miles per gallon of gasoline. How many miles can Billy drive on 7 gallons of gasoline?

Section 1.4

81) For a full-time student, the average cost for a semester of classes at SCF is \$936.28. Books cost \$419.17 and miscellaneous supplies cost \$287.58. Find the total amount for the semester, and round to the nearest dollar.

Section 1.6

84) Eddie needs to paint a fence which has 9,936 square feet of surface. One gallon of paint covers 576 square feet. How many whole gallons of paint will he need?

Section 1.7

- 85) Perform the indicated operations:

$$12 + (6 \div 3)^2 \cdot 3 - 2$$

- 86) Perform the indicated operations:

$$12 - 8 \div 4 \cdot (5 - 3)^2$$

Section 1.8

- 87) Translate into an algebraic Expression. Let
- x
- represent "a number."
-
- The quotient of twice a number and thirteen.*

Section 2.1

- 88) Simplify:
- $-|-21|$

- 89) Simplify:
- $-(-15)$

Section 2.2

- 90) Evaluate the expression if
- $x = -2$
- and
- $y = 0$
- :

$$3x^2 + 5y$$

Section 2.3

- 91) Evaluate the expression if
- $x = 7$
- and
- $y = -5$
- :

$$5xy - 3y$$

Section 2.4

- 92) Translate the phrase then simplify:
-
- Subtract -8 from 19*

Section 2.5

- 93) Perform the indicated operations:

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

- 94) Perform the indicated operations:

$$|(4 - 5)^2 - 12|$$

Section 2.6

- 95) Solve for
- x
- :
- $-6x - 4 = 50$

Section 3.1

- 96) Simplify:
- $4(x - 7) - 6x$

Section 3.2

- 97) Solve for
- x
- :
- $-4 - 10 = 4x - 5x$

Section 3.3

- 98) Solve for
- x
- :
- $-4 + 3x = 4(x + 2)$

Section 3.4

- 99) Translate into an algebraic equation and solve. Use
- x
- to represent "a number."
-
- Twice a number decreased by seven is negative 5*

Section 4.2

- 100) Determine whether the following fractions are equivalent:

$$\frac{5}{8} \text{ and } \frac{7}{11}$$

Section 4.3

- 101) Farmer Johnson has 60 chickens in his barn. Two thirds of his chickens lay eggs. How many of his chickens lay eggs?
- 102) Of the 45 students taking the math exam, seven-ninths of them passed. How many students passed the exam?

Section 4.4

- 103) Jan has run $\frac{13}{7}$ miles of a marathon that is $\frac{22}{7}$ miles. How much farther must she run?

Section 4.5

- 104) Simplify the following by combining like terms:

$$\frac{2x}{3} + \frac{4y}{3} + \frac{x}{3} - \frac{2y}{3}$$

- 105) Simplify the following by combining like terms:

$$\left(\frac{2x}{5} + \frac{3}{8}\right) - \left(\frac{x}{5} - \frac{1}{8}\right)$$

Section 4.6

- 106) Simplify. $\left(\frac{1}{3}\right)^2 \div \left(\frac{2}{5} - \frac{1}{4}\right)$

Section 4.7

- 107) Subtract and write solution as a mixed number:

$$2\frac{2}{7} - 4\frac{3}{5}$$

Section 4.8

- 108) Solve for x : $\frac{5}{4}x = \frac{1}{2} - \frac{7}{10}$

Section 5.1

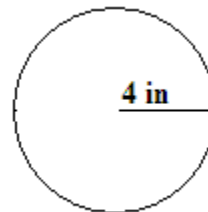
- 109) Write 0.875 as a fraction in lowest terms.

Section 5.2

- 110) Simplify the following by combining like terms:
 $0.3x - 1.7y + 9.2x + 0.8y$

Section 5.3

- 111) Find the circumference of the following circle.
- Give the exact answer (in terms of π).
 - Approximate the circumference by using $\pi \approx 3.14$.

Section 5.4

- 112) Divide 68 by 0.0002

Section 5.5

- 113) Write $7\frac{3}{5}$ as a decimal.

- 114) Make the statement true by inserting $>$ or $<$ between the numbers:

$$0.37 \text{ ______ } \frac{3}{8}$$

Section 5.6

115) Solve for x : $-5x = 12.245$

Section 5.7

- 116) Helen's test scores are 51, 97, 88, 85, 71 and 80. What is Helen's average (mean) test score?
(Round to the nearest tenth)

Section 6.1

- 117) Which is the better buy?
- A 24 oz. jar of jelly for \$3.79
 - A 16 oz. jar of jelly for \$2.99

- 118) Jack's Donuts-R-Us sells a dozen glazed donuts for \$1.92. Herbert's Donut Heaven sells six glazed donuts for \$1.14. Find the unit price for a donut at each shop and state which shop is cheaper.

Section 6.2

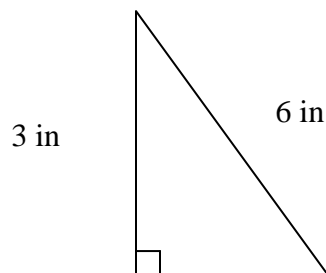
119) Solve for x : $\frac{11}{16.5} = \frac{x}{198}$

Section 6.3

- 120) On an architect's blueprint, 1 inch corresponds to 8 feet. Find the length of a wall represented by a line that is $5\frac{1}{4}$ inches on the blueprint.

Section 6.4

- 121) Use the Pythagorean theorem ($a^2 + b^2 = c^2$) to find the missing side of the following right triangle. Round your answer to the nearest thousandth.

Section 7.2

- 122) Translate into an equation and solve: 24 is what percent of 120?

Section 7.3

- 123) Write as a proportion and solve: 234.5 is 35% of what number?

Section 7.4

- 124) The value of a diamond increases by the same amount each year. If the value increases by \$600 in 4 years, then how much does the value of the diamond increase in value per year?

Section 7.5

125) Larry earns 25% commission on his sales per month. If Larry sells \$6,500 worth of merchandise in one month, how much does he earn?

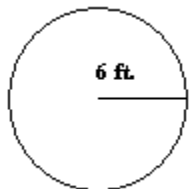
126) Maryland has a sales tax of 6%. Delaware has no sales tax at all. Would it be cheaper to buy a sweater for \$79 in Maryland or \$84 in Delaware?

Section 7.6

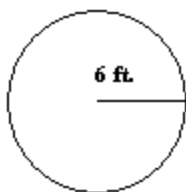
127) Robert invests \$3,850 into an account that pays $12\frac{1}{2}\%$ simple interest. How much interest will he earn after 2 years?

Section 9.2

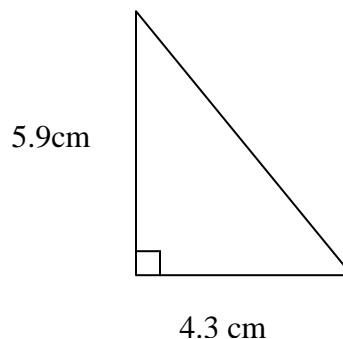
128) Find the exact circumference of the circle (in terms of π).

Section 9.3

129) Find the exact area of the following circle (in terms of π).



130) Find the area of the following figure:



131) In the 1980's the Rubik's cube was very popular. It was a cube that measured three inches on each side. What was the volume of the cube?

Section 9.4

132) Convert $12\frac{1}{2}$ ft. to in.
(use 1 ft. = 12 in.)

Section 9.5

133) Convert 4.9 tons to pounds
(use 1 ton = 2000 pounds)

Section 9.6

134) Convert $2\frac{3}{4}$ gallons to pints
(use 1 gal. = 4 qt. & 1 qt. = 2 pt.)

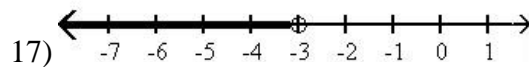
135) 0.127 L to kiloliters

Solutions:

- 1) Forty-two million, ninety-seven thousand, eight hundred twenty-three
- 2) 980,617
- 3) 28,117
- 4) 67,459
- 5) 44,000
- 6) 231,000,000
- 7) 161,164

- 8) 1,554 square feet
- 9) 406

- 10) 92 R 61
- 11) 59
- 12) 39
- 13) 3
- 14) 62
- 15) a) = b) =
- 16) a) > b) <



- 18) 12
- 19) 12
- 20) -21
- 21) 6
- 22) 13
- 23) 420
- 24) -60
- 25) 4
- 26) -3
- 27) $y = -5$
- 28) $x = -9$
- 29) $-2x + 1$
- 30) $-7x + 20$
- 31) $x = 8$
- 32) $x = -21$
- 33) $x = 11$
- 34) $x = -2$
- 35) $3(x+5) = x+1$; $x = -7$
- 36) a) $\frac{14}{25}$ b) $\frac{11}{25}$

- 37) $\frac{3}{5}$
- 38) $2^2 \cdot 3^3 \cdot 5$
- 39) $-\frac{1}{7}$
- 40) $\frac{7}{5} = 1\frac{2}{5}$
- 41) $\frac{4}{7}$
- 42) $\frac{22}{15} = 1\frac{7}{15}$
- 43) $\frac{25}{4} = 6\frac{1}{4}$
- 44) $\frac{10}{7} = 1\frac{3}{7}$
- 45) $8\frac{5}{14}$
- 46) $2\frac{1}{3}$
- 47) $y = \frac{29}{28} = 1\frac{1}{28}$
- 48) $x = 8$
- 49) Four and sixty-five hundredths
- 50) 3.28
- 51) -29.792
- 52) 82.075
- 53) 82
- 54) 0.89
- 55) $x = 293$
- 56) $81.8 \approx 82$
- 57) a) $\frac{5}{6}$ b) $\frac{1}{5}$
- 58) 1000 males
- 59) $n = 1.56$
- 60) 450 km
- 61) 8
- 62) $\frac{7}{12}$
- 63) 0.014
- 64) 832%
- 65) 12

- 66) 92%
 67) 25%
 68) 27.8%
 69) a) \$70.00 b) \$280.00
 70) \$1,060.00
 71) 48 cm
 72) The square has a larger area
 73) 7 ft.
- 74) 42,000 cm
 75) 80 ounces
 76) 4,900 mg
 77) $4\frac{1}{2}$ qts.
 78) 0.0017 kl

End of non-calculator portion / Beginning of calculator portion

- 79) \$820
 80) 62 meters
 81) \$1,643
 82) 120cm^2 or 120 square centimeters
 83) 84 gallons
 84) 17.25 → he needs 18 gallons of paint because he can't buy half-gallons
 85) 22
 86) 4
 87) $\frac{2x}{13}$
 88) -21
 89) 15
 90) 12
 91) -160
 92) 27
 93) 0
 94) 11
 95) $x = -9$
 96) $-2x - 28$
 97) $x = 14$
 98) $x = -12$
 99) $2x - 7 = -5$; $x = 1$
 100) Not equivalent
 101) 40 chickens
 102) 35 students
 103) $\frac{9}{7}$ miles = $1\frac{2}{7}$ miles
 104) $\frac{3x+2y}{3}$ or $x + \frac{2y}{3}$
 105) $\frac{x}{5} + \frac{1}{2}$ or $\frac{2x+5}{10}$
- 106) $\frac{20}{27}$
 107) $-\frac{81}{35} = -2\frac{11}{35}$
 108) $x = -\frac{4}{25}$
 109) $\frac{7}{8}$
 110) $9.5x - 0.9y$
 111) a) 8π in. b) 25.12 in.
 112) 340,000
 113) 7.6
 114) <
 115) -2.449
 116) 78.7
 117) a
 118) Jack's
 119) $x = 132$
 120) 42 feet
 121) 5.196 inches
 122) 20%
 123) $x = 670$
 124) \$150.00
 125) \$1,625.00
 126) MD is cheaper
 127) \$962.50
 128) $C = 12\pi$ feet
 129) $A = 36\pi$ square feet
 130) $A = 12.685$ square cm.
 131) $V = 27$ cubic inches
 132) 150 in.
 133) 9800 lbs.
 134) 22 pts.
 135) 0.000127 kl