Studen ..	**Instructor**	**Assignment:** Unit VIII Homework
Date:	J a	
Time:		
	Course: MAT1301-14A-2B16-S1	
	Book: Pirnot: Mathematics All Around, 5e	

1. Determine whether the following statement is true.

7 divides 28.

Is "7 divides 28" a true or false statement?

○ True

○ False

2. Check the following number for divisibility by each of these numbers: 2, 3, 4, 5, 6, 8, 9, 10. State the numbers that divide the given number.

556,760

Is 556,760 divisible by 2?

- ○ Yes
- ○ No

Is 556,760 divisible by 3?

- ○ Yes
- ○ No

Is 556,760 divisible by 4?

- ○ Yes
- ○ No

Is 556,760 divisible by 5?

- ○ Yes
- ○ No

Is 556,760 divisible by 6?

- ○ No
- ○ Yes

Is 556,760 divisible by 8?

- ○ Yes
- ○ No

2. (cont.) Is 556,760 divisible by 9?

- ○ No
- ○ Yes

Is 556,760 divisible by 10?

- ○ Yes
- ○ No

Thus, the numbers from the list 2, 3, 4, 5, 6, 8, 9, and 10 that divide 556,760 are ☐.
(Use a comma to separate answers as needed.)

3. Find the GCD and LCM of the following pair of natural numbers.

45, 189

The GCD of 45 and 189 is ☐. (Type a whole number.)

The LCM of 45 and 189 is ☐. (Type a whole number.)

4. Perform the following calculation.

$(-2)(+5)+(-9)(+7)$

$(-2)(+5)+(-9)(+7)=$ ☐ (Simplify your answer.)

Assignment: Unit VIII Homework

Book: Pirnot: Mathematics All Around, 5e

5. Is the following pair of rational numbers equal?

$\frac{2}{3}$ and $\frac{12}{18}$

Choose the correct answer below.

○A. $\frac{2}{3}$ is equal to $\frac{12}{18}$.

○B. $\frac{2}{3}$ is not equal to $\frac{12}{18}$.

6. Perform the following operations. Express your answer as a positive or negative quotient of two integers in reduced form.

$\frac{23}{70} \div \left(\frac{1}{10} - \frac{5}{46}\right)$

$\frac{23}{70} \div \left(\frac{1}{10} - \frac{5}{46}\right) =$ ☐ (Type an integer or a simplified fraction.)

7. Convert the mixed number to an improper fraction.

$7\frac{1}{6}$

$7\frac{1}{6} =$ ☐ (Type an integer or an improper fraction.)

8. Determine whether the number is rational or irrational.
$\sqrt{9}$

Is $\sqrt{9}$ a rational or an irrational number?

○ Irrational ○ Rational

9. Determine whether the number is rational or irrational.

3.456445644456...

Is 3.456445644456... rational or irrational?

- ○ Irrational
- ○ Rational

10. Simplify by rationalizing the denominator.

$$\frac{5}{\sqrt{2}}$$

The answer is ☐.
(Simplify your answer, including any radicals. Use integers or fractions for any numbers in the expression.)

11. Identify the property that the equation illustrates.

$7 + 0 = 7$

What property is illustrated by the equation?

- ○A. Identity
- ○B. Inverse
- ○C. Commutative
- ○D. Associative
- ○E. Distributive

12. Evaluate the expression.

$4^7 \cdot 4^{-6}$

$4^7 \cdot 4^{-6} =$ ☐ (Type an integer or a simplified fraction.)

13. Divide.

$$\frac{2^5}{2^2}$$

$\frac{2^5}{2^2} =$ ☐ (Type an integer or a fraction.)

14. Express the number 0.000024 in scientific notation.

0.000024 = ☐
(Use scientific notation. Use the multiplication symbol in the math palette as needed.)

15. A natural history museum estimates that at any moment there are 500,000,000,000,000,000,000 insects on Earth. Express the number of insects in scientific notation.

500,000,000,000,000,000,000 insects = ☐ insects
(Use scientific notation. Use the multiplication symbol in the math palette as needed.)

16. Determine the next term of the sequence and determine if the sequence is arithmetic, geometric, or neither.

3, 15, 75, 375, 1875

The next term is ☐.

Choose the correct answer below.

- ○ A. Neither arithmetic nor geometric
- ○ B. Geometric
- ○ C. Arithmetic

17. For the following geometric sequence, find a_{10}.

$$1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \cdots$$

$a_{10} =$ ☐ (Type an integer or a simplified fraction.)

18. Write the decimal 5.15 as a percent.

5.15 = ☐ %

19. 19.6 is what percent of 80?

19.6 is ☐ % of 80.
(Type an integer or a decimal.)

20. The number 32.55 is 23.25% of what number?

The number 32.55 is 23.25% of ☐.
(Type an integer or a decimal.)

21. Use the formula for future value, $A = P(1 + rt)$, and elementary algebra to find the missing quantity.

$A = \$2{,}480$; $r = 8\%$; $t = 3$ years

$P = \$$☐ (Simplify your answer.)

22. Use the formula for computing future value using compound interest to determine the value of an account at the end of 5 years if a principal amount of $10,000 is deposited in an account at an annual interest rate of 7% and the interest is compounded monthly.

The amount after 5 years will be $☐.
(Round to the nearest cent as needed.)

23. Use the unpaid balance method to find the finance charge on the credit card account. Last month's balance, the payment, the annual interest rate, and any other transactions are given.

Last month's balance, $480
Payment, $310
Interest rate, 18.8%
Bought plane ticket, $130
Bought luggage, $150
Paid hotel bill, $180

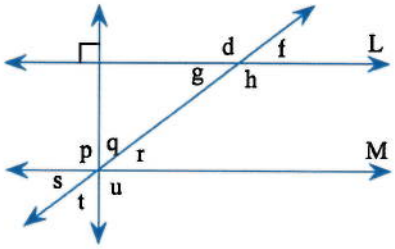
The finance charge is $☐.
(Round to the nearest cent as needed.)

24. Find the finance charge per $100 for the loan described below.

Loan, $3,000; finance charge, $630

The finance charge is $ ☐ per $100.
(Round to the nearest cent as needed.)

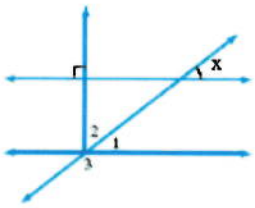
25. Lines L and M are parallel. Determine which of the lettered angles are alternate interior angles.



Select all that apply.

☐ A. ∠f and ∠p
☐ B. ∠h and ∠p
☐ C. ∠g and ∠s
☐ D. ∠g and ∠r
☐ E. ∠f and ∠s
☐ F. ∠r and ∠f

26. The figure to the right shows two parallel lines intersected by more than one transversal. Let $x = 29°$. Find the measure of angles 1, 2, and 3.

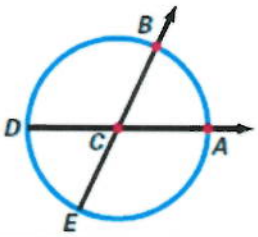


$m\angle 1 =$ ☐ °

$m\angle 2 =$ ☐ °

$m\angle 3 =$ ☐ °

27. Given the circumference of the circle and the length of arc AB, find the measure of the central angle ACB.



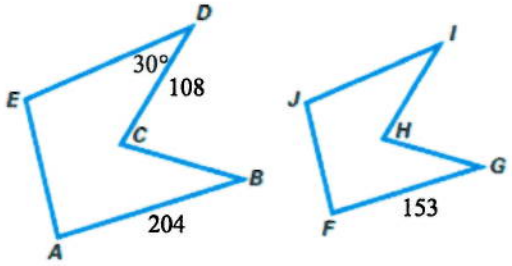
circumference = 210 meters; length of arc AB = 7 meters

$m\angle ACB =$ ☐°

28. What is the measure of an interior angle of a regular polygon with 10 sides?

Each angle of a regular polygon with 10 sides measures ☐°.

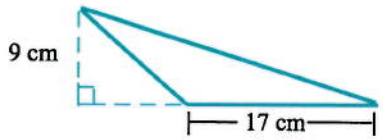
29. Assume that the figures shown to the right are similar. Given the lengths of sides and measures of angles in the left figure, what information is known about the right figure?



The measure of angle [F / G / H / I / J] is ☐°.

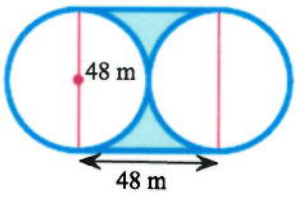
The length of side [FG / GH / HI / IJ / JF] is ☐.

30. Determine the area of the triangle.



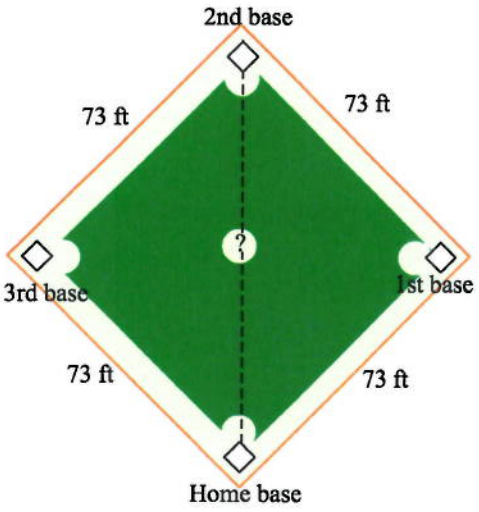
The area is ☐ cm^2.
(Type an integer or a decimal.)

31. Find the area of the shaded region inside the square and between the two circles. Use $\pi \approx 3.14$.



The area of the shaded region is approximately ☐ m^2.
(Type an integer or decimal.)

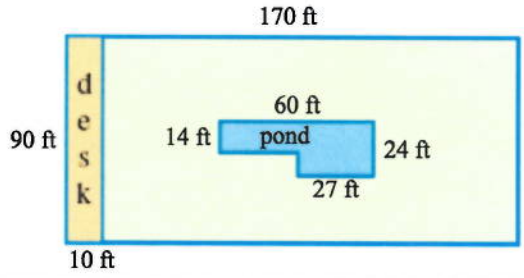
32.



A baseball diamond is a square with 73 feet between each base. Determine the distance from home plate to second base.

The distance from home plate to second base is ☐ feet.
(Round to the nearest hundredth as needed.)

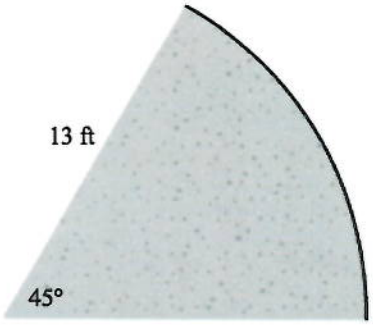
33. A hotel owner wants to re-tile his lobby. Use the diagram shown to the right to determine the area to be tiled. Note that the figure to the right is not to scale.



The area to be tiled is ☐ feet. / square feet. / cubic feet.

(Simplify your answer.)

34. A man is designing a basketball court for his children. The court is in the form of a segment of a circle, as shown on the right. He will paint the court with a concrete sealer. What is the area of the surface of the court?



The area of the court is approximately ☐ ft^2.

(Round to one decimal place as needed.)

35. Convert to Celsius. Use the formula $C = \frac{5}{9} \cdot (F - 32)$.

139° F

139° F = ☐ ° C

(Simplify your answer. Type an integer or a decimal. Round to the nearest tenth if needed.)

36. Mr. Hershman has purchased a rectangular piece of land that measures 3.6 km by 4.3 km. Assuming that 1 km^2 equals 100 ha, how many hectares of land is that?

☐ ha

37. List all the ways to select two different members from S without repetition. The order in which members are selected is important. For example, AB is not the same selection as BA.

$S = \{F, G, H, J, K\}$

Identify the list of all the ways to select two members from S. Choose the correct answer below.

- ○A. FG, FH, FJ, FK, GH, GJ, GK, HJ, HK, JK
- ○B. FF, FG, FH, FJ, FK, GG, GH, GJ, GK, HH, HJ, HK, JJ, JK, KK
- ○C. FH, FJ, FK, GH, GJ, GK, HJ, HK
- ○D. FG, FH, FJ, FK, GF, GH, GJ, GK, HF, HG, HJ, HK, JF, JG, JH, JK, KF, KG, KH, KJ

38. An eyewitness to a crime said that the license plate of the getaway car began with the letters T, C, and X, but he could not remember the order. The rest of the plate had the numbers 6, 3, 2, and 0, but again he did not recall the order. How many license plates must the police investigate to find the car?

How many license plates must the police investigate to find the car? Choose the correct answer below.

- ○A. 5,040
- ○B. 128
- ○C. 12
- ○D. 144

39. The board of an Internet startup company has fourteen members. If one person is to be in charge of accounting and another in charge of human resources, in how many ways can these two positions be filled?

How many ways can the two positions be filled?

40. Using the digits 0, 1, 2, ...8, 9, determine how many 3-digit numbers can be constructed according to the following criteria.

The number must be odd and greater than 600; digits may be repeated.

The number of 3-digit numbers that can be constructed is ☐.

41. Evaluate.

$$\frac{15!}{12!}$$

The solution is ☐.

42. A pair of fair dice is rolled.

a. What is the probability of rolling a sum of 10?
b. What are the odds against rolling a sum of 10?

a. The probability of rolling a sum of 10 is ☐. (Simplify your answer.)

b. What are the odds against rolling a sum of 10?

- ○A. 11 to 1
- ○B. 1 to 11
- ○C. 11 to 12
- ○D. 110 to 1

43. If $P(A \cup B) = 0.7$, $P(A) = 0.5$, and $P(A \cap B) = 0.35$, find $P(B)$. Assume that A and B are events.

$P(B) =$ ☐
(Simplify your answer. Type an integer or a decimal.)

44. The table below relates the amount of time consumers spend shopping on the Internet per month with their annual income. What is the probability that a randomly selected consumer either spends 3–9 hours per month shopping on the Internet or has an annual income of $40,000–$60,000?

Annual Income	10 + Hours	3–9 Hours	0–2 Hours	Totals
Above $60,000	184	185	116	485
$40,000 – $60,000	169	211	146	526
Below $40,000	116	184	282	582
Totals	469	580	544	1,593

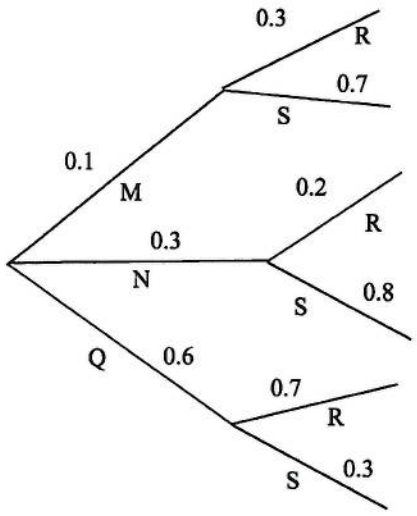
The probability that a consumer either has an annual income of $40,000–$60,000 or spends 3–9 hours per month shopping on the Internet is ☐.
(Type a decimal rounded to two decimal places.)

45. Assume that 2 cards are drawn from a standard 52-card deck. Find the following probabilities.
a) Assume the cards are drawn without replacement. Find the probability of drawing 2 clubs.
b) Assume the cards are drawn with replacement. Find the probability of drawing 2 clubs.

a. The probability of drawing 2 clubs without replacement is ☐.
(Simplify your answer.)

b. The probability of drawing 2 clubs with replacement is ☐.
(Simplify your answer.)

46. Find the probability, P(M∩R), associated with the tree diagram.



What is P(M∩R)?

☐

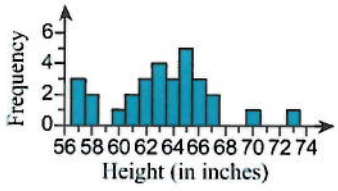
(Round to the nearest hundredth.)

47. At the same time that heights of the boys at a High School were studied, heights of the girls were also studied. Draw a histogram to summarize the data set that follows, which gives the heights, to the nearest inch, of 30 girls at the High School. Use intervals one unit wide centered at the whole-number values 56, 57, . . . , 74.

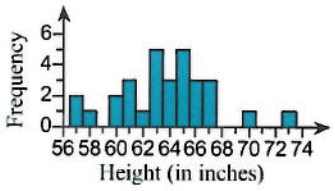
57	61	63	64	65	67
57	61	63	64	65	67
58	61	63	65	66	67
60	62	63	65	66	70
60	63	64	65	66	73

Choose the correct histogram below.

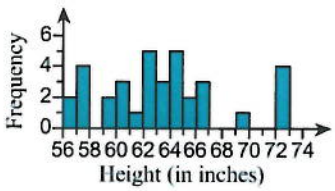
○A.



○B.



○C.



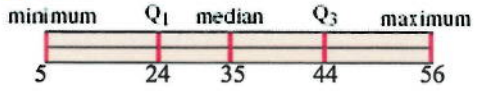
48. (a) Give the five-number summary for the distribution, and (b) draw a box-and-whisker plot.

5, 24, 27, 17, 29, 35, 45, 19, 44, 29, 35, 37, 45, 44, 56

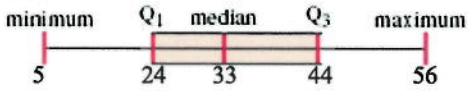
(a) The five-number summary for this data set is ☐, ☐, ☐, ☐, ☐.
(Use ascending order. Simplify your answers.)

(b) Choose the correct box-and-whisker plot.

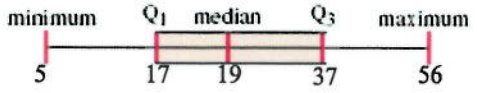
○A.



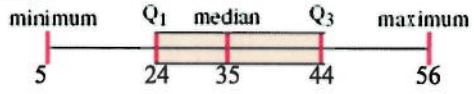
○B.



○C.



○D.



49. The table on the right gives the annual income for eight families, in thousands of dollars. Find the number of standard deviations family C's income is from the mean.

Family	A	B	C	D	E	F	G	H
Income	49	48	49	51	53	51	54	53

How many standard deviations is family C's income from the mean?

☐ (Round to three decimal places as needed.)

50. Find the range, mean, and standard deviation of the data set.

{15, 3, 15, 9, 9, 11, 18, 6}

The range is ☐.
(Type a whole number.)

The mean is ☐.
(Type an integer or a decimal.)

The standard deviation is ☐.
(Round the final answer to two decimal places as needed. Round all intermediate values to three decimal places as needed.)