

APPLICATION REVIEW

1. Find the cost of the carpet needed to cover the floor of a room that is 14 yards long and 10 yards wide if the carpet costs \$13.00 per square yard.
2. A can of soup is in the shape of a right circular cylinder whose diameter is 3 inches and whose height is 5 inches. (a) What is the volume of the can? (b) How much steel was used in constructing the can? Use $\pi \approx 3.14$.
3. Subtract $3u^4 - 3u^3 + 4u^2 - 7$ from $u^4 + u^2 - 3u + 1$.
4. From the sum of $-x^3 - 4x^2 + 2x + 2$ and $2x^3 - 3x^2 - 2x + 1$, subtract $3x^3 + 6x^2 - 2x - 2$.
5. If a board is $(2x + 6)$ feet long and a piece $(x - 5)$ feet long is cut off, what is the length of the remaining piece?
6. If John climbs $(x + 5)$ feet and then climbs $(3x - 8)$ feet farther, what is the total distance he has climbed?
7. Write an expression and simplify.
The square of the quantity 4 less than the product of 6 and x .
8. Find the area of the rectangle with length $5a - 7$ and width $3a + 2$.
9. Divide the sum of $5x^2 - 7x + 5$ and $3x^2 + 3x - 9$ by $2x$.
10. Hans is renting a sofa for \$12.75 per month. If a new sofa costs \$306, how many months will it take for the rental fees to equal the cost of a new sofa?
11. A high school boasts that three-fifths of its teachers have a master's degree. If 45 teachers have a master's degree, how many teachers does the school have?
12. The charges for repairing a transmission were \$255 including parts. If the mechanic worked for 4 hours and the parts cost \$75, how much down the mechanic charge per hour?

13. Three consecutive odd integers are such that the sum of four times the first and the second is three times the third. Find the integers.
14. An office purchased 50 reams of paper for which it paid \$260. There are two types of paper. The lighter-weight paper cost \$4.00 per ream and the heavier paper cost \$7.00 per ream. How many reams of each type of paper were purchased?
15. Oscar paid \$124 for four pairs of shorts that all cost the same. If he had a coupon for \$20 off, what was the cost of each pair of shorts?
16. The sum of three consecutive integers is equal to four times the second integer. Find the integers.
17. A television picture tube is 9 centimeters longer than it is wide. If the perimeter of the tube is 142 centimeters, what are the length and width of the tube?
18. To rent a small truck from U-haul in Orlando for local use, the cost is \$19.99 per day plus 59 cents per mile. If x represents the number of miles driven and y is the cost of one day, then $y = 19.99 + .59x$.
- Find the cost for one day if the truck was driven 25 miles.
 - If it cost \$67.19 for one day's rental, how many miles was the truck driven?
 - Find three ordered pairs and draw the graph.
 - From the graph, estimate the number of miles driven if the cost is \$37.69. Verify your answer from the equation.
19. A company purchases a piece of machinery for \$30,000. The value, $V(x)$, of the machinery as a function of the number of years after it was purchased, x , is given by $V(x) = -1800x + 30,000$.
- Find the value of the machinery after 4 years.
 - Find the value of the machinery after 10 years.
 - What does $V(8) = 15,600$ mean?
20. The length of a rectangle is 5 less than twice the width. If the area of the rectangle is 25 square centimeters, find the dimensions of the rectangle.
21. Find two consecutive odd integers whose product is 63.

22. Find the products of rational numbers. Express answer reduced to lowest terms.

A rope is $5\frac{1}{4}$ feet long. If $\frac{2}{3}$ of the rope is cut off, how long is the piece that was cut off?

23. Find the area of a triangle whose base is $3\frac{3}{5}$ inches and whose height is $4\frac{2}{3}$ inches.

24. Find the quotient. Express answer reduced to lowest terms.

If a car used $12\frac{8}{10}$ gallons of gas on a trip of 416 miles, what was the average miles per gallon for the trip?

25. A carpenter is installing molding around a triangular opening the lengths of whose sides are $8\frac{3}{4}$ inches, $7\frac{5}{6}$ inches, and $8\frac{3}{8}$ inches. If the molding costs \$.04 per inch, find the cost of the molding to the nearest cent.

26. Two numbers differ by 4. If $\frac{3}{4}$ of the smaller number is increased by $\frac{1}{2}$ of the larger number, the sum is 2. Find the numbers.

27. Working together, it takes Elena and Eduardo 10 days to do an architectural project. If Elena can do the project by herself in 15 days, how long would it take Eduardo to do the project working by himself?

28. A lawn mower uses 2 quarts of gasoline to mow $\frac{1}{3}$ acre of grass. How many acres can be mowed with 9 quarts of gasoline?

29. A machine can fill 3600 cans in 25 minutes. How many cans can be filled in 70 minutes?

30. Find the original price of a dining room suite that was discounted by \$138 if the discount rate was 30%.

31. Mark paid \$664 for a suit that was discounted 20%. What was the original price of the suit?

32. If Hans sold a used car for \$1800 and received a commission of \$396, what was his rate of commission?

33. Solve each of the following. Round the answers to the nearest percent or nearest hundredth where appropriate.

a. 950 is 102% of what number?

b. If 350 jobs are 8% of the jobs in a company, how many jobs are in the company?

34. An item marked at \$350 was discounted 15%. How much was the purchase price?

35. Francine purchased a boat for \$18,500. If the sales tax rate is 7%, what was the total cost of the boat?

36. Television screens are measured diagonally. For example, if a television is advertised as having a 17-inch screen, it means the screen measures 17 inches diagonally. If a television is advertised as having a 25-inch rectangular screen and the screen is 20 inches long, how wide is the screen?

37. When hurricanes threaten, a common practice is to tape windows to keep the glass from shattering. If a rectangular window is 40 inches long and 30 inches wide, how long is a piece of tape that goes diagonally across the window?

38. A guy wire is attached to a telephone pole at a point 30 feet above the ground. How long is the wire if the other end is attached at a point on the ground 10 feet from the base of the pole?

39. One integer is 3 more than the other. The sum of the reciprocals of the integers is $\frac{7}{10}$.

Find the integers.

40. The sum of the squares of two consecutive integers is 61. Find the integers.

Application Review Answer Key

1) \$1820

2) a. 35.325 in^3 b. 61.23 in^2

3) $-2u^4 + 3u^3 - 3u^2 - 3u + 8$

4) $-2x^3 - 13x^2 + 2x + 5$

5) $x + 11$

6) $4x - 3$

7) $(6x - 4)^2$

8) $15a^2 - 11a - 14$

9) $4x^2 - 2x - 2 / x$

10) 24

11) 60

12) \$45

13) 5, 7, 9

14) $h = 20, l = 30$

15) \$36

16) -1, 0, 1

17) $l = 40 \text{ cm}; w = 31 \text{ cm}$

18) a. \$34.74, b. 80, d. 30

19) a. 22,800 b. 12,000 c. after 8 years

valued at 15, 600

20) 5×5

21) 7, 9 or -9, -7

22) 3.5 ft

23) $(42/5) \text{ in}^2$

24) 32.5 mi

25) \$1.00

26) 0, 4

27) 30

28) 1.5 acres

29) 10,080

30) \$460.00

31) \$830

32) 22%

33) a. 931.373 b. 4375

34) \$297.50

35) \$19,795

36) 15 in.

37) 50 in.

38) 31.62 ft.

39) 2, 5

40) 5, 6 or -5, -6

