

Answer questions 1-35 on your Scantron.

Questions 1-30 will be scored for the Power Bowl event. In the event of a tie, questions 31-35 will be used as the tiebreaker.

1. Solve.

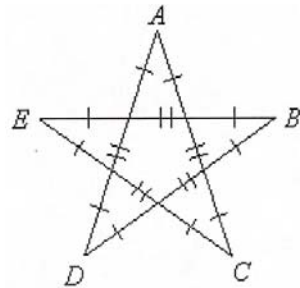
$$4 \times 4^4$$

- a. 4^4 b. 4^5 c. 14^4 d. 16^5 e. NG

2. A parking garage charges \$1.50 for the first hour and \$0.75 for each additional hour or part of an hour. How much will it cost Josh to park in the garage for $5\frac{1}{2}$ hours?

- a. \$4.50 b. \$5.25 c. \$6.00 d. \$2.25 e. NG

3. What is the sum of the measures of the angles A, B, C, D, and E in the figure below?

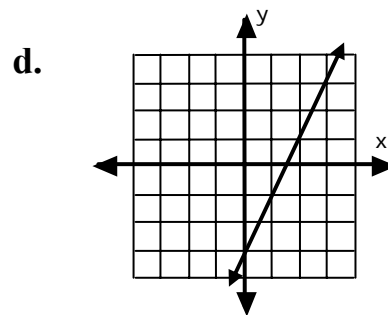
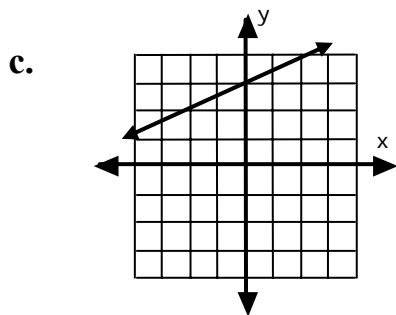
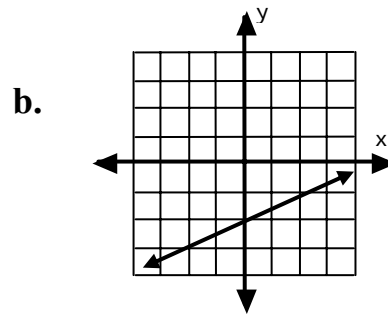
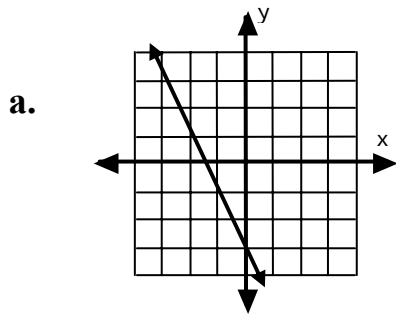


- a. 270° b. 180° c. 210° d. 240° e. 360°

4. An automobile travels 60 km in 45 minutes. Its speed in kilometers per hour is

- a. 45 b. 72 c. 75 d. 80 e. 90

5. Which of the following is a graph of $y = 2x - 3$?



e. NG

6. Which of the following could replace the variable x to make the inequality true?

$$\frac{4}{8} < x < 0.75$$

a. $\frac{6}{8}$

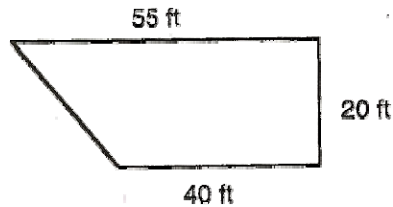
b. $\frac{2}{3}$

c. $\frac{3}{7}$

d. $\frac{44}{100}$

e. NG

7. A fence cost \$2.50 per foot is built around the plot shown below. How much did it cost to fence the plot?



- a. \$375 b. \$300 c. \$325 d. \$350 e. NG
8. I multiply 2 integers. Their product is 36. Their sum *cannot* be
- a. 12 b. 13 c. 20 d. 36 e. 37
9. Bubba Bigbucks used a \$100 bill to pay for two books that cost \$11.98 each, two CDs that cost \$12.94 each, and a shirt that cost \$21.50. If the tax rate is 8.25%, how much does Bubba receive in change from his \$100?
- a. \$22.77 b. \$28.66 c. \$71.34 d. \$77.23 e. NG
10. In 2005, Laura's salary was x dollars. In 2006, business was good and she received a 10% raise. In 2007, business was bad and she received a 10% pay cut. How does her salary in 2007 compare to her salary in 2005?
- a. same b. 1% more c. 1% less d. 10% more e. 5% more

11. Which of the following is **not** an irrational number?

- a. $\sqrt{5}$ b. π c. $\sqrt{\frac{1}{3}}$ d. $\sqrt{21}$ e. 0

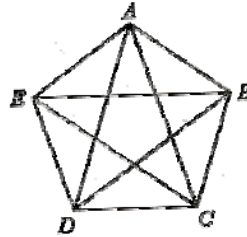
12. The area of a circle is $9\pi \text{ cm}^2$. The radius of this circle is:

- a. 3 cm b. 6 cm c. 9 cm d. 2 cm e. NG

13. Find the y-intercept of the graph of the equation
 $y = 2x + 4$

- a. 2 b. -2 c. 4 d. -4 e. NG

14. How many triangles of any size are formed by the lines in the picture below?



- a. 14 b. 45 c. 30 d. 120 e. 35

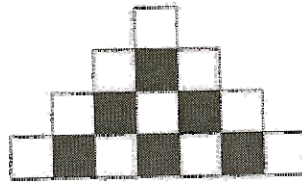
15. Which of the following is smallest?

- a. $\frac{5^{-4}}{5^{-5}}$ b. 5^0 c. 5^{-3} d. 0^5 e. $\left(\frac{1}{5}\right)^2$

16. If Juan's car travels 259 miles on 11 gallons of gasoline, Joe's car travels 365 miles on 15 gallons, and Sarita's car travels 288 miles on 12 gallons, whose car gets the better gas mileage?

a. Juan b. Joe c. The mpg would be equal d. Sarita e. NG

17. A "stair-step" figure is made up of alternating black and white squares in each row. Rows 1 through 4 are shown.



All rows begin and end with a white square. The number of black squares in the 50th row is:

a. 50 b. 48 c. 51 d. 49 e. 47

18. Which of the following is the smallest?

a. $\frac{2}{1-\frac{1}{3}}$ b. $\frac{2}{1+\frac{1}{3}}$ c. $\frac{3}{1+\frac{1}{2}}$ d. $\frac{3}{1-\frac{1}{2}}$ e. $\frac{2}{\frac{1}{2}+\frac{1}{3}}$

19. Morgan works for 10 days and asks to be paid in the following manner: \$1 for the first day and three times as much each day thereafter. Find her total earnings for 10 days.

a. \$29524 b. \$9280 c. \$2700 d. \$19683 e. NG

20. Solve the quadratic equation given below.

$$x^2 - 5x + 6 = 0$$

- a. $x = -2$ or -3 b. $x = 2$ or 3 c. $x = -5$ or 6 d. $x = 5$ or -6 e. NG

21. Solve.

$$\sqrt{100} = \sqrt{36} + \sqrt{?}$$

- a. 2 b. 4 c. 16 d. 64 e. NG

22. If $\frac{2}{3}$ of a cup of fish food can feed 8 goldfish, then 4 cups of fish food should be able to feed ? goldfish.

- a. 12 b. 24 c. 36 d. 48 e. NG

23. I phoned my mom to help me answer this, the final question on a quiz show: *How many integers equal their own squares?* Mom said, "?." She was right!

- a. zero b. one c. two d. three e. NG

24. A dealer paid Bunny Fabergé 50 pennies for each of his decorated eggs. The dealer then sold each egg for 50 quarters. Bunny (the artist) got what percent of the final purchase price?

- a. 2% b. 4% c. 25% d. 50% e. 100%

25. A soccer team has won 20 games and lost 15. If the team wins the remaining games, they will have won 80% of all the games which they played. How many games will they play altogether?
- a. 35 games b. 40 games c. 60 games d. 75 games e. NG
26. There are 29 people in a room. Of these 11 speak Spanish, 24 speak English and 3 speak neither Spanish nor English. How many people in the room speak both Spanish and English?
- a. 3 b. 4 c. 6 d. 8 e. NG
27. Solve the equation
 $-2x + 6 = 4x - 2$
- a. no solutions b. 0 c. 3 d. $\frac{1}{2}$ e. $\frac{4}{3}$
28. Michelle and Sam are playing a game with two cubes. One of the cubes is numbered 0, 1, 2, 3, 4, 5. The other cube is numbered 0, -1, -2, -3, -4, -5. How many different sums are possible when the two cubes are rolled?
- a. 6 b. 10 c. 11 d. 5 e. NG
29. The first 15 odd integers are multiplied together. The answer ends with the digit
- a. 1 b. 3 c. 5 d. 7 e. 9

30. If $A \ominus B$ means $\frac{A+B}{2}$ then $(3 \ominus 5) \ominus 8$ is
- a. 16 b. 8 c. 12 d. 6 e. 30
31. Find the slope of the line passing through (1, 2) and (-3, 5)
- a. $-\frac{3}{4}$ b. $-\frac{4}{3}$ c. $\frac{3}{2}$ d. $\frac{2}{3}$ e. undefined
32. Solve.
 $-4(-2x + 2) - (3x - 5) = -3(4x - 5) + 9$
- a. $\frac{17}{27}$ b. $\frac{27}{17}$ c. no solution d. -17 e. 1
33. Which ordered pair is a solution of the inequality $7y - 8x > 56$
- a. (0, 8) b. (0, 0) c. (-6, 1) d. (-7, 2) e. NG
34. If $4x =$ the reciprocal of $\frac{1}{x^3}$, then x could equal
- a. $\frac{1}{8}$ b. $\frac{1}{2}$ c. 2 d. 8 e. 3

35. Simplify.

$$\left(\frac{2}{3}\right)^3 =$$

a. 2

b. $\frac{6}{9}$

c. $\frac{8}{3}$

d. $\frac{8}{27}$

e. NG