

Algebra 1 B Final Exam REVIEW**Multiple Choice***Identify the choice that best completes the statement or answers the question.*

- _____ 1. Find the value of $\cos 53^\circ$. Round to the nearest ten-thousandth.
a. -0.9183 b. 0.7986 c. 1.327 d. 0.6018

Simplify the expression.

- _____ 2. $4\sqrt{6} - \sqrt{6}$
a. $5\sqrt{6}$ b. $5\sqrt{12}$ c. $3\sqrt{12}$ d. $3\sqrt{6}$

- _____ 3. $(m^4)^4$
a. m^{256} b. m^8 c. m^{16} d. $2m^{16}$

- _____ 4. $6k^3m^{-6}$
a. $\frac{6k^3}{m^6}$ b. $6k^{-3}m^6$ c. $6km^{-18}$ d. $\frac{k^3}{6m^6}$

- _____ 5. $(2)^{-3}$
a. $-\frac{1}{8}$ b. -6 c. $\frac{1}{8}$ d. 8

- _____ 6. $3a \cdot 3a^{12}$
a. $6a^{13}$ b. $6a^{12}$ c. $9a^{13}$ d. $9a^{12}$

- _____ 7. $9^9 \cdot 9^{10} \cdot 9^5$
a. 9^{24} b. 27^{24} c. 9^{450} d. 729^{24}

- _____ 8. $\frac{a^3}{a^4}$
a. $\frac{1}{a^7}$ b. a c. a^7 d. $\frac{1}{a}$

- _____ 9. $(9g^5)^3$
a. $9g^{125}$ b. $9g^{15}$ c. $729g^8$ d. $729g^{15}$

Simplify the radical expression by rationalizing the denominator.

- _____ 10. $\frac{2}{\sqrt{30}}$
a. $\frac{\sqrt{30}}{15}$ b. $\frac{\sqrt{450}}{30}$ c. $\sqrt{30}$ d. $30\sqrt{2}$

Simplify the product using FOIL.

- ___ 11. $(2x + 2)(3x - 5)$
a. $6x^2 + 16x + 10$ c. $6x^2 - 16x + 10$
b. $6x^2 - 4x - 10$ d. $6x^2 + 4x - 10$
- ___ 12. $(2x + 3)(5x + 3)$
a. $10x^2 + 9x - 9$ c. $10x^2 + 21x + 9$
b. $10x^2 - 21x + 9$ d. $10x^2 - 9x - 9$

Write the number in scientific notation.

- ___ 13. 7,480,000,000
a. 74.8×100^8 b. 7.48×10^9 c. 0.748×10^{10} d. 7.48×10

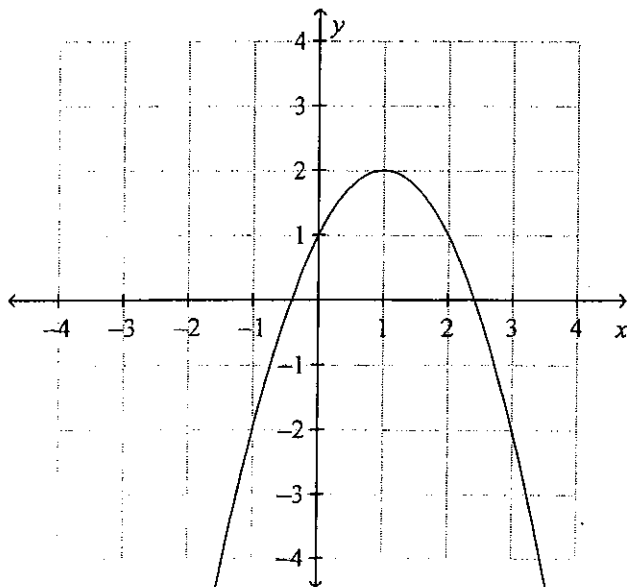
Simplify the expression.

- ___ 14. ${}_8C_5$
a. 56 b. 6,720 c. 112 d. 70

Use a calculator to find the given value. Round to four decimal places.

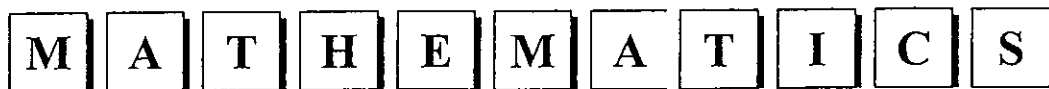
- ___ 15. $\sin 41^\circ$
a. 0.7547 b. 0.8693 c. 1.5243 d. 0.6561

- ___ 16. Identify the vertex of the graph. Tell whether it is a minimum or maximum.



- a. (2, 1); minimum c. (1, 2); minimum
b. (2, 1); maximum d. (1, 2); maximum

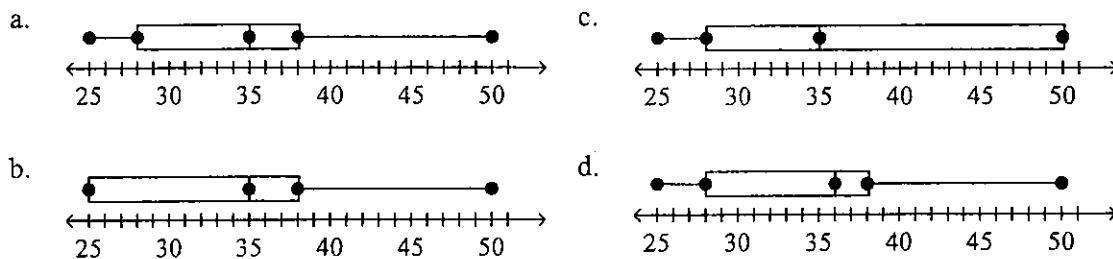
You select a card at random. Without replacing the card, you select a second card. Find the probability.



17. $P(A, \text{ then } C)$
- a. $\frac{3}{11}$ b. $\frac{2}{21}$ c. $\frac{1}{55}$ d. $\frac{2}{121}$
18. Write the polynomial in standard form. Then name the polynomial based on its degree and number of terms.
- $2 + 11x^2 - 8x - 6x^2$
- a. $-5x^2 - 8x + 2$; quadratic trinomial c. $-6x^2 - 8x - 2$; cubic polynomial
 b. $5x^2 - 8x + 2$; quadratic trinomial d. $6x^2 - 8x + 2$; cubic trinomial
19. Write $3 \cdot 10^{-5}$ as a decimal.
- a. 300,000 b. 0.00003 c. -150 d. 0.3
20. Write an equation in point-slope form for the line through the given point with the given slope.
- $(-7, -2); m = \frac{1}{3}$
- a. $y - 2 = \frac{1}{3}(x - 7)$ c. $y + 7 = \frac{1}{3}(x + 2)$
 b. $y - 2 = \frac{1}{3}(x + 7)$ d. $y + 2 = \frac{1}{3}(x + 7)$

Draw the box-and-whisker plot for the data.

21. 32, 35, 44, 35, 35, 44, 25, 35, 26, 25, 31, 28, 50, 38, 34



22. Find the constant of variation k for the direct variation.

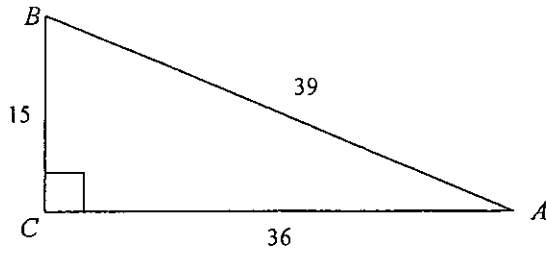
$6x - 3y = 0$

- a. $k = -\frac{1}{2}$ b. $k = 2$ c. $k = -3$ d. $k = -2$

23. Write an equation of the direct variation that includes the point $(-10, 16)$.

- a. $y = \frac{1}{16}x$ b. $y = -1\frac{3}{5}x$ c. $y = -\frac{5}{8}x$ d. $y = 1\frac{3}{5}x$

24. Use $\triangle ABC$ to find the value of $\sin B$.



- a. $\frac{5}{13}$ b. $\frac{13}{12}$ c. $\frac{12}{5}$ d. $\frac{12}{13}$

Use any method to solve the equation. If necessary, round to the nearest hundredth.

25. $11x^2 = 15$

- a. 3.87, -3.87 b. 3.32, -3.32 c. 0.86, -0.86 d. 1.17, -1.17

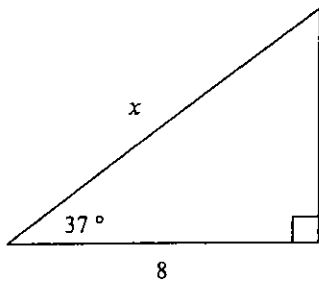
Simplify the radical expression.

26. $\sqrt{\frac{11}{100}}$

- a. $\frac{11}{10}$ b. $\frac{\sqrt{11}}{10}$ c. $10\sqrt{11}$ d. $\frac{\sqrt{11}}{50}$

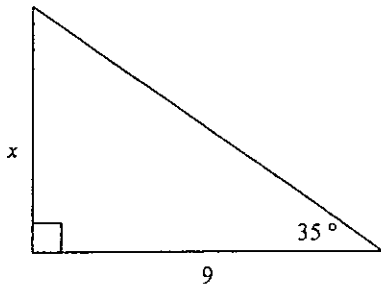
Find the value of x to the nearest tenth.

27.



- a. 10 b. 10.6 c. 6 d. 10.5

28.



- a. 5.2 b. 7.4 c. 4.3 d. 6.3

29. A drawer contains 4 red socks, 2 white socks, and 6 blue socks. Without looking, you select a sock at random, replace it, and select a second sock at random. What is the probability that the first sock is blue and the second sock is red?

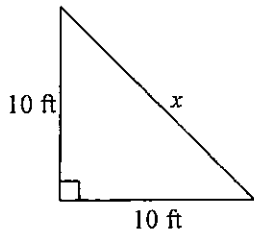
- a. $\frac{1}{6}$ b. $\frac{5}{12}$ c. 1 d. $\frac{5}{72}$

Simplify the expression. Write the answer using scientific notation.

30. $(5 \times 10^5)(8 \times 10^7)$

- a. 1.3×10^{13} b. 4.0×10^{36} c. 4.0×10^{13} d. 1.3×10^{36}

31. Find the length of the hypotenuse. Round to the nearest tenth if necessary.



- a. 7.1 ft b. 17.3 ft c. 14.1 ft d. 20 ft

Solve the equation using the zero-product property.

32. $(3x + 12)(8x - 10) = 0$

- a. $x = -4$ or $x = 1\frac{1}{4}$ c. $x = -3$ or $x = 8$
b. $x = -4$ or $x = -1\frac{1}{4}$ d. $x = 4$ or $x = 1\frac{1}{4}$

Match the table with the function that models the data.

33.

x	y
1	4
2	8
3	12
4	16

a. $y = x^4$

b. $y = 4x$

c. $y = 4^x$

Simplify the square root.

34. $-\sqrt{9}$

a. -0.3

b. -9

c. 3

d. -3

35. Find the range of the data.

Scores: 82, 86, 88, 81, 90, 84, 75, 88, 77, 82

a. 20

b. 19

c. 15

d. 17

Solve the equation by factoring.

36. $z^2 - 3z - 10 = 0$

a. $z = -2$ or $z = 5$

c. $z = 2$ or $z = -5$

b. $z = -2$ or $z = -5$

d. $z = 2$ or $z = 5$