Act American College Testing: Math Section

1. In the diagram above, line OA is congruent to line OB.

A. 110º

B. 70º

C. 55º

D. 27.5º

E. 125º

Answer(s): B

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2. If b3 = -64, then b 2 - 3b - 4 =:

A. 0.

B. -6.

C. -4.

D. 24.

E. 28.

Answer(s): D

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3. Which of the following statements is always true if p is a rational number?

A. ○ **A.**
$|p| < |3p|$

B. ○ **B.**
$|p^{-p}| > p^{-p}$

C. ○ **C.**
$|p^2| \geq |p+1|$

D. ○ **D.**
$|p^3| > |p^2|$

E. ○ **E.**
$|-p| \geq p$

Answer(s): A

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4. Laura plans to paint the 8-foot-high rectangular walls of her room, and before she buys paint she needs to know the area of the wall surface to be painted. Two walls are 10 feet wide, and the other 2 walls are 15 feet wide. The combined area of the 1 window and the 1 door in her room is 60 square feet.

A. 390

B. 340

C. 400

D. 360

E. 200

Answer(s): B

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5. Given the following figure with one tangent and one secant drawn to the circle, what is the measure of

A. 50

B. 85

C. 60

D. 25

E. 110

Answer(s): D

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6. In the diagram above, ABDE is a square and BCD is an equilateral triangle.

A. ○ **A.**
$60\sqrt{3}$
cm

B. ○ **B.**
$36\sqrt{3}$
cm

C. 84 cm

D. ○ **D.**
$30\sqrt{3}$
cm

E. 60 cm

Answer(s): E

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7. If 3 x - y = 2 and 2 y - 3 x = 8, which of the following is equal to x / y ?

A. ○ **A.**


B. 6

C. 2/3

D. 4

E. 2/5

Answer(s): E

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8. What is x, the second term in the series of 1/3 + x + 1/27 + 1/81...?

A. 1/6

B. 1/15

C. 1/12

D. 1/9

Answer(s): D

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9. The pie chart above shows the distribution of video rentals from Al's Video Vault for a single night.

A. 22

B. 20

C. 30

D. 10

E. 25

Answer(s): E

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10. What is the sum of the solutions of the 2 equations below?

A. ○ **A.**
$2\frac{2}{5}$

B. 10

C. ○ **C.**
$7\frac{1}{2}$

D. ○ **D.**
$17\frac{1}{2}$

E. 9

Answer(s): C

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11. If 40% of j is equal to 50% of k, then j is:

A. 10% larger than k.

B. 15% larger than k.

C. 20% larger than k.

D. 25% larger than k.

E. 80% larger than k.

Answer(s): D

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12. Which of the following sets of numbers contains all and only the roots of the equation f(x) = x 3 + 7 x 2 - 8 x ?

A. {8, -1}

B. {0, 8, -1}

C. {0, -1, -8, 1, 8}

D. {0, -8, 1}

E. {-8, 1}

Answer(s): D

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13. If f(x) = 8x 2 - 10x + 5, then f(-4) = ?

A. 50

B. 173

C. -3

D. -173

Answer(s): B

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14. Which of the following is an irrational number?

A. 4 -3

B. ○ **B.**
$(\sqrt{32})$

C. ○ **C.**
$-(\sqrt{3}\sqrt{3})$
D
$\frac{\sqrt{72}}{\sqrt{200}}$

D. ○ **D.**
$\sqrt{\frac{4}{9}}$

Answer(s): B

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15. The measures of the length, width, and height of a rectangular prism are in the ratio 2:6:5.

A. 6 mm

B. 3 mm

C. 9 mm

D. 27 mm

E. 18 mm

Answer(s): E

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16. When x = 1/2, what is the value of (8x - 3) / x?

A. 5/2

B. 1/2

C. 10

D. 2

E. 5

Answer(s): D

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17. A line has a y-intercept of -6 and an x-intercept of 9.

A. (6, 13)

B. (1, 3)

C. (3, -8)

D. (0, 9)

E. (-6, -10)

Answer(s): E

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18. The line y = -2x + 8 is:

A. parallel to the line y = 1/2x + 8.

B. perpendicular to the line 1/2y = -2x - 8.

C. perpendicular to the line y = 2x - 8.

D. parallel to the line 1/2y = -x + 3.

E. perpendicular to the line 2y = -1/2x + 8.

Answer(s): D

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19. Which of the following is equivalent to (2 x + 6) / 4 times (6 x - 36) / (3 x + 9)?

A. (8x - 30) / (3x + 13)

B. x - 6

C. (x - 6) / 4

D. (12x 2 - 216) / (12x + 36)

Answer(s): B

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20. Mikea, an intern with the Parks and Recreation Department, is developing a proposal for the new a trapezoidal Springdale Park. The figure below shows her scale drawing of the proposed park with 3 side lengths and radius of the merry-go-round given in inches. In Mikea's scale drawing, 1 inch represents

A. 544

B. 1,088

C. 448

D. 672

E. 640

Answer(s): A
