Course 3 Benchmark Test – First Quarter (Chapters 1–2)

1. The average distance from the Earth to the moon is about 384,000 kilometers. What is this number written in scientific notation?

   A. 384×10^5

   B. 384×10^3

   C. 3.84×10^6

   *D. 3.84×10^5

2. **SHORT ANSWER** Marc is finding the product of the monomials $3c^2d^4$ and $-4c^3d$. His work is shown below. What error did he make?

> Marc
>
> $3c^2d^4(-4c^3d)$
>
> $= 3(-4)(c^2c^3)(d^4d)$
>
> $= -12c^6d^4$

He multiplied the exponents instead of adding them.

3. Which point on the number line shows $\sqrt{45}$?

   F. point F

   G. point G

   *H. point H

   I. point I

4. A moving company charges $40 plus $0.25 per mile to rent a van. Another company charges $25 plus $0.35 per mile to rent the same van. For what number of miles will the rental cost be the same for both companies?

   *A. 150 miles

   B. 180 miles

   C. 260 miles

   D. 650 miles

5. A taxicab service charges $3.75 plus $0.40 per mile. Molly takes a taxicab from the hotel to the airport. If the total charge was $10.95, which equation could be used to determine the number of miles from the hotel to the airport?
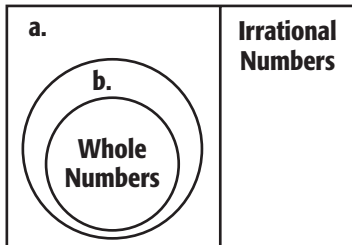
   F. $3.75m + 0.4 = 10.95$

   *G. $3.75 + 0.4m = 10.95$

   H. $4.15m = 10.95$

   I. $3.35m = 10.95$

6. Which value is equivalent to 4^{-3}?

   A. -12

   B. -1

   C. $-\dfrac{1}{64}$

   *D. $\dfrac{1}{64}$

Course 3 Benchmark Test – First Quarter *(continued)*

7. SHORT ANSWER The Venn diagram shows the real number system. Write the names of the missing sets of numbers.

a. Rational Numbers; b. Integers

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8. Which of the following does *not* represent a rational number?

F. -250

G. $\dfrac{11}{39}$

*H. $\sqrt{60}$

I. $12.09\overline{82}$

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9. The school marching band has 36 members. The band director wants to arrange the band members into a square formation. How many band members should be in each row?

A. 8

*B. 6

C. 5

D. 4

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10. Which expression is equivalent to the expression below?

$$a \cdot a \cdot a \cdot b \cdot a \cdot b \cdot b \cdot a \cdot b \cdot a$$

*F. $a^6 b^4$

G. $a^{-6} b^{-4}$

H. $(ab)^{10}$

I. $(ab)^2$

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11. What is the solution to the equation below?

$$-\dfrac{2}{3} p + \dfrac{1}{6} = \dfrac{7}{10}$$

A. $-\dfrac{13}{10}$

*B. $-\dfrac{4}{5}$

C. $-\dfrac{26}{45}$

D. $-\dfrac{16}{45}$

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12. Solve the equation below for t.

$$3t - 5 = -21 + t$$

F. -52

G. -32

H. -13

*I. -8

Course 3 Benchmark Test – First Quarter   *(continued)*

13. The distance from the Sun to Earth is about 1.5×10^{11} meters. Suppose light travels at a speed of 3×10^8 meters per second. About how long does it take light from the Sun to reach Earth?

   A. 4.5×10^{19} seconds

   B. 1.503×10^{11} seconds

   C. 5×10^3 seconds

   *D. 5×10^2 seconds

14. What is the value of b in the equation below?

$$4(b - 1) = 2b + 10$$

   F. 4

   G. 5.5

   *H. 7

   I. 11.5

15. The table shows the populations of several states. What is the population of Ohio written in scientific notation?

State	Population
Georgia	9,400,000
Illinois	12,900,000
Ohio	11,500,000
California	36,900,000

   A. 1.15×10^{-8}

   B. 1.15×10^{-7}

   *C. 1.15×10^7
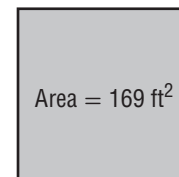
   D. 1.15×10^8

16. Which of the expressions below is *not* equivalent to the other three?

   F. 0.015625

   *G. 15.625%

   H. 4^{-3}

   I. $\dfrac{1}{64}$

17. **SHORT ANSWER** What is the result when the monomial $-5x^3y^2z$ is raised to the third power?
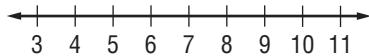
   $-125x^9y^6z^3$

18. The area of a square living room is 169 square feet. What is the perimeter of the room?

   Area = 169 ft^2

   A. 13 ft

   B. 17 ft

   *C. 52 ft

   D. 68 ft

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**19.** Between which two integers does $\sqrt{88}$ lie on the number line?

    3 4 5 6 7 8 9 10 11

  F. between 6 and 7

  G. between 7 and 8

  H. between 8 and 9

  *I. between 9 and 10

20. Which of the following symbols results in a true number sentence when placed in the blank?

$$\sqrt{12.96} \underline{\quad} 3\tfrac{3}{5}$$

  *A. =

  B. >

  C. <

  D. ×

21. SHORT ANSWER The area of an equilateral triangle is given by the expression $\dfrac{s^2\sqrt{3}}{4}$, where s is the side length of the triangle. What is the area of triangle below? Round to the nearest tenth.

5 cm   5 cm

5 cm

10.8 cm²
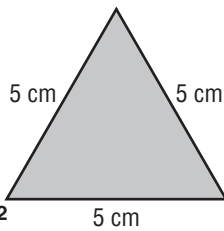
22. Which of the following numbers has the least absolute value?

  F. 3.5×10^{-5}

  *G. 8.75×10^{-7}

  H. 5.62×10^{3}

  I. 1.002×10^{12}

23. Which equation shows the following relationship?

Seven less than four times a number is equal to 5.

  A. $7 - 4n = 5$

  *B. $4n - 7 = 5$

  C. $7n - 4 = 5$

  D. $4 - 7n = 5$

24. Which equation is equivalent to the equation below?

$$5(n + 6) = 2(n - 3) + 4$$

  F. $5n + 6 = 2n + 1$

  G. $5n + 6 = 2n - 2$

  H. $5n + 30 = 2n + 1$

  *I. $5n + 30 = 2n - 2$

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25. SHORT ANSWER Juanita has saved $65 for vacation. She plans to save an additional $5 per week. How many weeks will it take for Juanita to save a total of $125? Write and solve an equation.

$65 + 5n = 125$; 12 weeks