

## Arithmetic

- 1)  $\frac{3}{4} \div \frac{7}{9} =$
- 2)  $\frac{1}{8} + \frac{4}{6} =$
- 3)  $\sqrt{16} + \frac{4}{1} =$
- 4)  $2.384 \div 0.921 =$
- 5)  $\frac{1}{7} \times \frac{7}{1} =$
- 6)  $\frac{1}{7} \div 7 =$
- 7)  $5.234 + 4.71 - 4 =$
- 8)  $\frac{2}{3} + 3\frac{1}{2} + 2.421 =$
- 9)  $7^2 =$
- 10)  $4^3 =$
- 11) What is the square root of 64?
- 12) William has \$4.20. If he purchases 3 candy bars at \$0.75 each, how much money does he have left?
- 13) A professor has 30 students in his class. 6 students scored an "A" average for the class. What percentage of the class had an "A" grade?

- 14) Max needs to mix water with detergent to a 4:1 ratio (four parts water, one part detergent). If he's using 1 ounce of detergent, how much water should he add to the solution?
- 15)  $(4+1)^2 - (4^2+1) =$
- 16)  $2(4^2+1^2) - (4+1)^2 =$
- 17) New York City has approximately 7.2 million residents. The United States of America has approximately 250 million residents. What proportion of Americans live in New York City?
- 18) The world population is approximately 6.4 billion residents. And again, New York City has approximately 7.2 million residents. What proportion of global inhabitants live in New York City?
- 19) In 1969, humankind celebrated the first time we set foot upon another heavenly body (the moon). Later on, President Bush vowed that by the 50<sup>th</sup> anniversary of that occasion, we should have sent someone to Mars. By what year should we expect to see the first person set foot on Mars?
- 20) There are approximately 250 million people living in the United States. Further, some statistics state that nearly 400,000 Americans die each year from causes related to cigarette smoking. By following these statistics, what percentage of Americans die each year from smoking?
- 21) In the number 2.5462132, which number represents the "thousandth" place? Which number represents the "tenth" place?

## Elementary Algebra

Solve each equation:

- 1)  $3x + 4 \geq -2$
  - 2)  $\frac{x}{2} + 3 = x + 4$
  - 3)  $x^2 = 16$
  - 4)  $(\sqrt{x+3})^2 = 0$
  - 5) Graph the following equation:  
 $y = \frac{x}{2} + 2$
  - 6) Graph the following equation:  
 $x^2 - y = 4$
  - 7) Solve:  
 $|x + 2| + 2 = 6$
- Factor the following:**
- 8)  $x^2 - 9$
  - 9)  $2x^2 - 7x - 4$
  - 10) Use  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  to solve:  
 $-1.7x^2 + 0.5x + 0.9 = 0$

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### **Answer Key:**

#### **Arithmetic:**

- 1)  $27/28$
- 2)  $19/24$
- 3) 8
- 4) 2.588
- 5) 1
- 6)  $1/49$
- 7) 5.944
- 8) 6.587 or 6.588
- 9) 49
- 10) 64
- 11)  $\pm 8$
- 12) \$1.95
- 13) 20%
- 14) 4 ounces of water
- 15) 8
- 16) 9
- 17) About 1 in 35 people
- 18) About 1 in 889 people
- 19) 2019
- 20) 0.16%
- 21) 6=thousandths, 5=tenths

#### **Algebra**

- 1)  $x \geq -2$
- 2)  $x = -2$
- 3)  $x = 4, x = -4$
- 4)  $x = -3$
- 5 and 6) graphing...see previous page
- 7)  $x = 2, x = -6$
- 8)  $(x+3)(x-3)$
- 9)  $(2x+1)(x-4)$
- 10)  $x = -0.595, x = 0.889$

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