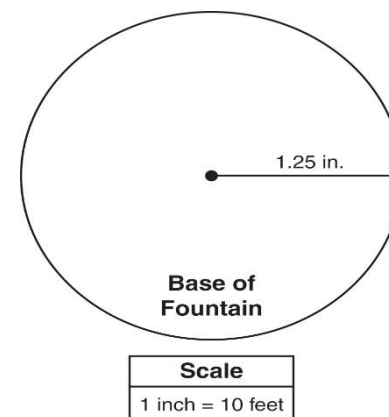# EQT Quarter 2 Study Guide
Course: Math 7 Accelerated

1. An architect designed a fountain for an outside plaza. The scale drawing shows the circular base of the fountain. Based on the scale drawing, what is the actual diameter of the base of the fountain?

1.25 in.

Base of Fountain

Scale
1 inch = 10 feet

2. Ming is making a model display of a playground. A 168-cm tall person is 2 cm in Ming's model. How high should his model swing be if the actual swing is 231 cm high?

3. An architect is making a floor plan for an apartment. The floor plan will include a Great Room with a length of 30 feet and a width of 20 feet. On her floor plan, $\frac{1}{4}$ inch will represent 1 foot of the room's actual width. What will be the width of the Great Room, in inches, on her floor plan?

4. José made a scale model to compare the Petronas Towers, which are 1483 feet tall, to the Empire State Building, which is 1250 feet tall. In the model, the Empire State Building is 25 inches tall. How much taller than the model of the Empire State Building is the model of the Petronas Towers, to the nearest 0.1 inch?

5. An architect's scale drawing of a new school is 8.4 inches long. The scale used in the drawing is 2 inches = 8 feet. What is the actual length, in feet, of the school?

1. What is the equation of the line with a y-intercept of -10 and a slope of 3?

2. What is the equation of the line having a slope of $\frac{5}{2}$ and a y-intercept of $(0, -4)$?

1. A bus passes 3 bus stops every 10 minutes. At this rate, how many bus stops will it pass in 2 hours?

2. If w is 15 when z is 9, and w varies directly with z, what is the value for z when w is 5?

3. Given that a and b are directly proportional and $a = 3$ when $b = 4$, find the value of b when $a = 12$.

4. Delia drove 290 miles in 5 hours. At this rate, how far will she drive in 7.5 hours?

5. When shooting free throws, David is successful 7 out of every 10 shots. If he attempts 100 free throws, about how many times will he be successful?

6. A $48 aquarium is on sale at a discount of 24%. What is the sale price of the aquarium?

7. A sales tax of 7% was added to the $36.00 price of a jacket. What was the total cost of the jacket?

8. A census is conducted every ten years. The census populations of four Florida cities in 1990 and 2000 are shown in the table. According to this data, which city had the greatest percentage change in population between the 1990 and 2000 census?

Census Populations in 1990 and 2000		
City	1990	2000
Archer City	1,372	1,289
Freeport	843	1,190
Haines City	11,683	13,174
Pensacola City	58,165	56,255

9. A light bulb company checked a random sample of 30 bulbs in the warehouse. Of the sample bulbs, 28 worked and 2 did not. A hardware store ordered a case of 144 light bulbs from this company. What would you expect to be true about the bulbs that the hardware store receives?

10. A store gave all its employees a 20% discount on their purchases. An employee bought a stove that originally cost $678.00. What was the discounted cost of the stove?

1. Which expression is equivalent to $3(4x + 10 \div 2 + 3)$?
    A. $12x + 2$ **B.** $12x + 6$ **C.** $12x + 8$ **D.** $12x + 24$

2. Dennis is going to purchase x tickets to a school play at a cost of $8.00 each. He remembers a coupon he was given that will reduce the total ticket cost by $0.50. Since Dennis is a member of the school faculty, the total cost of the tickets after the coupon reduction will be reduced by an additional 25%. The total amount, in dollars, that Dennis will spend to purchase x tickets, with the given reductions, can be represented by the expression below.

$$\left(8x - \frac{1}{2}\right) - \frac{1}{4}\left(8x - \frac{1}{2}\right)$$

Which of the following is an equivalent expression?
    A. $6x$ **B.** $6x - \frac{1}{4}$ **C.** $6x - \frac{3}{8}$ **D.** $6x - \frac{5}{8}$

1. What is the value of the expression $5^2 - (-3)^2$?

2. Avery works approximately 2080 hours per year. If she earns between $7.50 and $8.25 per hour, what is the range of her annual salary?

3. Alayah purchased a shirt for $14.65 and a pair of jeans for $21.99. If she was charged $2.93 tax, how much change would she receive if she paid with a $50.00 bill?

4. Yvonne's phone bill was $25.45, which included a basic fee of $4.95 plus the amount of her long-distance calls. What is the cost of her long-distance calls?

5. A pitcher full of water weighs 8.34 pounds. Lisa will carry 5 pitchers on a cart and deliver them to tables. About how much would 5 pitchers of water weigh?

1. Ali needs $60 to purchase a flute. She has $32. She can earn $4 an hour babysitting. Write an equation that could be used to find h, the number of hours Ali needs to babysit to earn enough money to purchase the flute.

2. Tommy purchased a riding lawnmower with an original value of $2,500. If the value of the riding lawnmower decreases by $300 per year, what should be the value of the lawnmower after five years?

3. Write an equation that could be used to find x if the perimeter of the rectangle at right is 50.
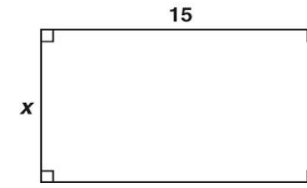
4. A farmer needs 5 gallons of water for each tree on his farm on any day that it does not rain. The farmer must use less than 90 gallons of water per tree each month. If n represents the number of days in a month when it does not rain, write an inequality that could be used to find the number of days the farmer can water his trees.

5. Sandy sold more than 22 tickets, which was greater than 6 more than twice the number of tickets that Teresa sold. This can be represented by the inequality $2t + 6 > 22$, where t represents the number of tickets Teresa sold. Find an expression for the range of tickets that Teresa could have sold.

6. Barry wanted to save at least $700. He opened a savings account with an initial deposit of $150. After his initial deposit, Barry then deposits the same amount of money each month for a year. If he makes no withdrawals, write an inequality that could be used to determine x, the number of dollars Barry deposited to his account each month.

1. What value of x makes the equation $-4 + \frac{1}{2}x = 8$ true?

2. If the equation $5(3x + 7) - 1 = 3(5x + k) + 4$ has infinitely many solutions, what is the value of k?

3. The relationship between the temperature in degrees Fahrenheit, F, and the temperature in degrees Celsius, C, is given by $F = \frac{9}{5}C + 32$. If a body temperature is $98.6°F$, which is closest to the body temperature in degrees Celsius?