Grade 9 Math　　　　**Unit 6 TEST: Equations and Inequalities**　　Name: _____
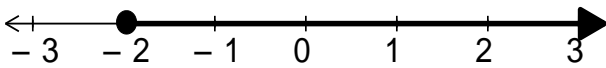
Part 1: **Multiple Choice. 7 marks**

_____ / 35 = _____ %

Write the correct answer in the space provided at the right.
Please show workings in the white space for those questions that require workings.

1.　　Solve:　$3x+5=-3$　　　　　　　　　　　　　　　　　　　　　　　1. ____

　　　(A)　$\dfrac{8}{3}$　　　　　(B)　6

　　　(C)　$-\dfrac{8}{3}$　　　　(D)　-6

2.　　Solve:　$4a-6=2a$　　　　　　　　　　　　　　　　　　　　　　　2. ____

　　　(A)　3　　　　　　(B)　2

　　　(C)　-3　　　　　(D)　-2

3.　　Solve:　$3(2y+1)=15$　　　　　　　　　　　　　　　　　　　　　3. ____

　　　(A)　3　　　　　　(B)　2

　　　(C)　-3　　　　　(D)　-2

4.　　Solve:　$\dfrac{m}{4}=-\dfrac{8}{3}$　　　　　　　　　　　　　　　　　　　4. ____

　　　(A)　6　　　　　　(B)　-6

　　　(C)　$\dfrac{32}{3}$　　　　　(D)　$-\dfrac{32}{3}$

5.　　Which equation can be used to solve the following problem?　　　　5. ____

　　　A number tripled and decreased by two is eleven.

　　　(A)　$2x+3=11$　　　　　　(B)　$3x+2=11$

　　　(C)　$3x-2=11$　　　　　　(D)　$2x-3=11$

6.　　Which solution set represents the following number line?　　　　　6. ____

　　　(A)　$x>-2$　　　　　　　(B)　$x\geq-2$

　　　(C)　$x<-2$　　　　　　　(D)　$x\leq-2$

7.　　Which number line below correctly shows the solution set　　　　6. ____
　　　for the inequality　$-4x\geq-16$

　　　(A)　　　　　　　　　　　　(B)

　　　(C)　　　　　　　　　　　　(D)

Part 2: Answer each of the following in the space provided.
Be sure to show all workings to receive full credit!   (28 Marks)
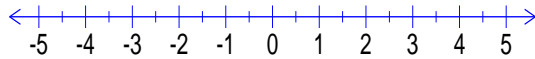
8. Solve each of the following equations and verify your answers.

a. $-5(y+3)+2y=2(y-5)$ (4 Marks)   b. $\dfrac{3}{2}(3y+2)=\dfrac{4}{3}(2y+6)$ (4 Marks)

9.   Solve and graph the following inequality.

$$\frac{2x}{3}-4\le\frac{5x}{2}-2$$ (4 Marks)

10.   Solve the following word problems algebraically. Make sure to identify the variables, write and solve the correct equation and state your answer.

a.   Three times a number decreased by four is equal to the same number divided by two and increased by six.   (4 Marks)

b.   A salesman is offered a position with a firm and he can chose two methods of payment.
         METHOD A: $850.00 per week plus a commission of 12% of his sales.
         METHOD B: $575.00 per week plus a commission of 17% of his sales.
Write an equation for each method, then write an equation to determine what sales will result in the same earnings.   (6 Marks)

11.   Point out the two errors in the following inequality: (2 Marks)

$$3(x+4) \leq 5(x+2)$$
$$3x+12 \leq 5x+2$$

a. $3x - 5x \leq 2 - 12$
$$-2x \leq -10$$
$$x \leq 5$$

b. Write a correct solution to the inequality   (4 Marks)