Patterning and Equations

Score: _____

1. **What number on the mass *t*, will keep the balance?**

A. 5

B. 8

C. 7

✔ **D. 4**
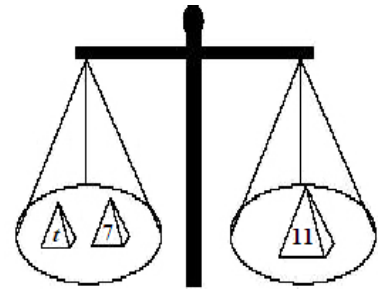
2. **For what value of *k* is 4*k* = 52, true?**

A. 6

B. 12

✔ **C. 13**

D. 14

3. **A number decreased by 12 equals (-5). What was the starting number?**

✔ A. 7

B. 12

C. 9

D. 4

4. **What is the solution to the equation *z* + 2 = 14?**

A. 14

✔ B. 12

C. 10

D. none of the above

5. **Translate this algebraic phrase. A number decreased by ninety-two.**

A. 92*n*

B. *n* + 92

C. 92 - *n*

✔ D. *n* - 92

6. Translate this algebraic phrase. **The sum of seventy and a number.**

✔ (A) $70 + n$

(B) $70n$

(C) $70 + n = 70$

(D) none of the above

7. **Triple a number, increased by 4 is 15.** This can be modelled as

(A) $3n - 4 = 15$

(B) $15 + 4 = 3n$

(C) $2n + 4 = 5$

✔ (D) $3n + 4 = 15$

8. What is the value of s if **$6s + 5 = 35$**?

(A) 4

✔ (B) 5

(C) 6

(D) 7

9. Model the following situation using an equation. **Three less than the product of five and a number equals twelve.**

(A) $3 - 5n = 12$

(B) $3n + 5 = 12$

✔ (C) $5n - 3 = 12$

(D) $5n + 3 = 12$

10. The expression **$2w + t$** shows how many points a hockey team gets per season. **w** represents wins, **t** represents ties. The Jets had 14 wins & 8 ties. How many points did they get?

(A) 30

✔ (B) 36

(C) 28

(D) 22
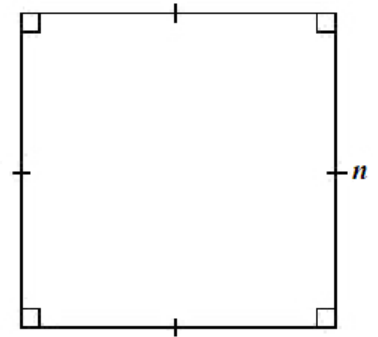
11. When Grant's age is doubled and 6 is added to it, the result is 19. What equation models the riddle above.

A) $6 + 2 = 19$

B) $6a + 2 = 19$

✔ C) $2a + 6 = 19$

D) $19 = 2 + 6a$

12. An expression for the area of the following square is

✔ A) $n \times n$

B) $4(n)$

C) $n + n$

D) none of the above

13. In a class of 35 kids, there are 9 more boys than girls. How many girls are in the class? Which following equation helps answer the question?

✔ A) $g + g + 9 = 35$
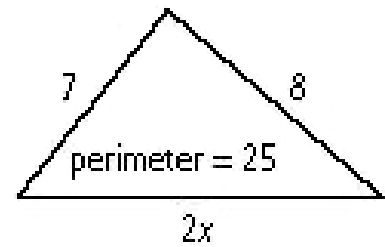
B) $2g + 9 = 30$

C) $g + 2(9) = 35$

D) $2g + 2(9) = 35$

14. Ted earns $7.50/hr as a cashier. Last week he earned $172.50. How many hours did he work?

✔ A) 23 hours

B) 46 hours

C) 40 hours

D) none of the above

15. Write an equation for the perimeter of this triangle solving the equation for *x*.

(A) $x/2 + 25 + 8 + 7$

(B) $25 = 7 - 8 - 2x$

(C) $2 + x + 7 + 8 = 25$

✔ (D) $2x + 8 + 7 = 25$

Triangle with sides labeled 7 and 8, perimeter = 25, base 2x.

16. Pilots use the following equation to determine the ground speed of an airplane.

ground Speed = air speed - headwind speed, also known as $g = a - h$
Calculate the plane's ground speed when the Air Speed = 940 km/hr and the Headwind Speed = 78 km/hr.

(A) $g = 940$ km/hr

(B) $g = 78$ km/hr

✔ (C) $g = 862$ km/hr

(D) $g = 1018$ km/hr

17. Which word statement represents **0.5(*n*) = 12 - 7**?

(A) half a number is 12

✔ (B) half a number is 7 less than 12

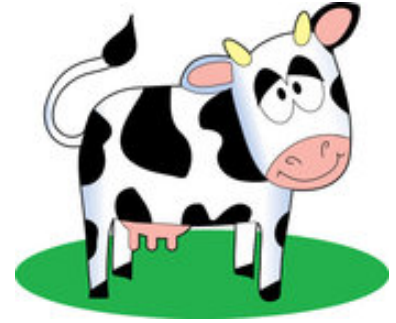(C) half of 7 is 5 less than 12

(D) 12 decreased by 5 is 7

18. A sum of money is divided among 3 people. Each person gets $25.35. What is the sum of money?

(A) $25.35

(B) $101.40

✔ (C) $76.05

(D) none of the above

19. Farmer Brown has 26 cows. He buys *q* more. The number of cows he has can be expressed as

- A) 26 - *q*
- B) 26*q*
- C) 26 of *q*
- ✔ D) **26 + *q***

20. Mr. Fitch bought a Suzuki scooter that weighs 238kg empty (dry weight). A full tank of gas on this bike is 16 litres. A litre of gasoline weighs 0.76 kg. Mr. F weighs 75kg. **What is the total weight if he's on the bike with only 1/4 of a tank of gas?**

- A) ~416kg
- ✔ B) **~316kg**
- C) ~319kg
- D) ~325kg