1 Speed Round Solutions

1. **Problem:** Benny bought 3 packs of stickers, each with x stickers. He already has 7 stickers. If he now has 25 stickers, solve for x.

   - **Solution:** $3x + 7 = 25 \rightarrow 3x = 18 \rightarrow x = 6$.
   - **Answer:** 6

2. **Problem:** Benny is simplifying his candy collection: $5(2x - 3) - 4(x + 1)$. What does he get in terms of x?

   - **Solution:** $5(2x-3)-4(x+1) = (10x-15)-(4x+4) = 10x-15-4x-4 = 6x-19$.
   - **Answer:** $6x - 19$

3. **Problem:** Benny is drawing a triangle with base 8 cm and height 5 cm. In cm^2, what is the area of his triangle?

   - **Solution:** $A = \frac{1}{2}bh = \frac{1}{2}(8)(5) = 4 \times 5 = 20$.
   - **Answer:** 20 cm^2

4. **Problem:** Solve for y: $2y - 3 = 7$

   - **Solution:** $2y - 3 = 7 \rightarrow 2y = 10 \rightarrow y = 5$.
   - **Answer:** 5

5. **Problem:** Benny, Jenny, Lenny, Kenny, and Denny have 6, 3, 17, 8, and 11 marbles respectively. How many marbles do they have, on average?

   - **Solution:** Average $= \frac{6+3+17+8+11}{5} = \frac{45}{5} = 9$.
   - **Answer:** 9

6. **Problem:** If Benny's train travels 60 miles in 1.5 hours, what is his train's average speed?

   - **Solution:** Speed $= \frac{\text{Distance}}{\text{Time}} = \frac{60 \text{ miles}}{1.5 \text{ hours}} = 40$ mph.
   - **Answer:** 40 mph

7. **Problem:** Factor $x^2 + 2x + 1$ completely.

   - **Solution:** This is simply $(x + 1)^2$.
   - **Answer:** $(x + 1)^2$ or $(x + 1)(x + 1)$

8. **Problem:** If Benny's favorite rectangle has a perimeter of 24 cm and a length of 7 cm, what is its area?

   - **Solution:** Perimeter is 2(Length + Width). Since the length is 7, and the perimeter is 24, we get the width to be $\frac{24-2(7)}{2} = 5$. $5 * 7 = 35$cm^2.

- **Answer:** 35 cm^2

9. **Problem:** Write 0.625625 as a fraction in simplest form.

   - **Solution:** $0.625625 = \frac{625625}{1000000}$. Divide the numerator and denominator by 625. $\frac{625625 \div 625}{1000000 \div 625} = \frac{1001}{1600}$.
   - **Answer:** $\frac{1001}{1600}$

10. **Problem:** Benny needs to solve for x: $x^2 = 289$. Please help him do so.

    - **Solution:** $x = \pm\sqrt{289}$.
    - **Answer:** 17 or -17 (or ± 17)

11. **Problem:** A bag of Benny's favorite chips contains 8 red, 15 blue, and 17 green chips. What is the probability he picks a red chip first?

    - **Solution:** Total $= 8 + 15 + 17 = 40$. $P(\text{Red}) = \frac{\text{Red}}{\text{Total}} = \frac{8}{40} = \frac{1}{5}$.
    - **Answer:** $\frac{1}{5}$

12. **Problem:** Benny is in a hotel in Paris and doesn't know what temperature to put the AC at. Convert $70°F$ to Celsius using $C = \frac{5}{9}(F - 32)$.

    - **Solution:** $C = \frac{5}{9}(70 - 32) = \frac{5}{9}(38) = \frac{190}{9}$.
    - **Answer:** $\frac{190}{9}$ °C (or $21\frac{1}{9}$ °C)

13. **Problem:** Benny has an allowance of \$2. If he spends 12.5% of his money on a candy bar, how much, in cents did the candy cost?

    - **Solution:** \$2 = 200 cents. $12.5\% = \frac{1}{8}$. Cost $= 200 \times \frac{1}{8} = 25$ cents.
    - **Answer:** 25 cents

14. **Problem:** The sum of Benny's favorite two consecutive integers is 89. What is their product?

    - **Solution:** $n + (n + 1) = 89 \rightarrow 2n + 1 = 89 \rightarrow 2n = 88 \rightarrow n = 44$. The integers are 44 and 45. Product $= 44 \times 45 = 1980$.
    - **Answer:** 1980

15. **Problem:** Solve for $x : 5(x - 2) = 3x + 4$

    - **Solution:** $5x - 10 = 3x + 4 \rightarrow 5x - 3x = 4 + 10 \rightarrow 2x = 14 \rightarrow x = 7$.
    - **Answer:** 7

16. **Problem:** Benny buys pencils in packs of 6. He needs 48 pencils. How many packs does he need?

    - **Solution:** $\frac{48 \text{ pencils}}{6 \text{ pencils/pack}} = 8$ packs.

- **Answer:** 8 packs

17. **Problem:** Write the first 4 multiples of 23.

    - **Solution:** $23 \times 1 = 23$; $23 \times 2 = 46$; $23 \times 3 = 69$; $23 \times 4 = 92$.
    - **Answer:** $23, 46, 69, 92$

18. **Problem:** The angles of a triangle in Benny's newest drawing are in the ratio 2:3:4. What is the smallest angle?

    - **Solution:** Let angles be $2x, 3x, 4x$. $2x + 3x + 4x = 180° \rightarrow 9x = 180° \rightarrow x = 20°$. The smallest angle is $2x = 2(20°) = 40°$.
    - **Answer:** $40°$

19. **Problem:** A circle has a radius of 7 cm. What is its circumference? (Use $\pi \approx 3.14$.)

    - **Solution:** $C = 2\pi r \approx 2(3.14)(7) = 14(3.14) = 43.96$ cm.
    - **Answer:** 43.96 cm

20. **Problem:** Benny buys 3 notebooks at \$3 each and 2 pens for \$14 total. How much is each pen?

    - **Solution:** The key implies \$14 is the grand total. Cost of notebooks $= 3 \times \$3 = \$9$. Cost of 2 pens $=$ Total $-$ Notebooks $= \$14 - \$9 = \$5$. Cost per pen $= \frac{\$5}{2} = \$2.50$.
    - **Answer:** \$2.50