Blitz, Page 1

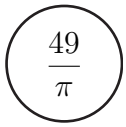
1. What is 20% of 30% of 400? 1. _____

2. You flip 2 fair coins, and you win if you get 2 heads or 2 tails. What is the probability that you win? Express your answer as a common fraction. 2. _____

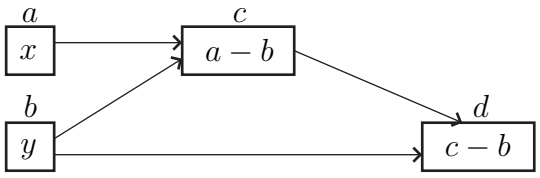
3. What is the sum of all the primes between 10 and 20? 3. _____

4. Suppose that $\frac{x-2}{x+4} = \frac{1}{3}$. What is the value of x? 4. _____

5. The area of a circle is $\frac{49}{\pi}$ cm^2. What is the circumference of the circle? 5. _____ cm



6. In the flow chart, the value of y is 10 and the output value in d is 10. What is the value of x? 6. _____



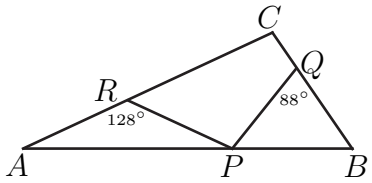
7. Alfie had \$10 to spend. He bought 3 chocolate bars and 8 cookies. The chocolate bars were priced at \$1.60 each, tax included. What is the highest possible price of a cookie? Give your answer in cents. 7. _____ cents

8. Dan is riding his bicycle at 10 m/sec. What is his speed in km/hr? 8. _____ km/hr

9. What is the smallest positive integer N such that $2008 + N$ contains only odd digits in its decimal representation? 9. _____

10. The first five terms of an infinite arithmetic sequence are 4, 11, 18, 25, and 32. What is the value of the 16-th term of the sequence? 10. _____

11. In the diagram below, $AR = PR$ and $PQ = BQ$. Also, $\angle ARP$ has measure 128 degrees, and $\angle PQB$ has measure 88 degrees. What is the degree measure of $\angle ACB$? 11. _____ degrees



12. North American roulette wheels have red, black, and green pockets. The red pockets are labelled 1, 3, 5, ..., 35. The black pockets are labelled 2, 4, 6, ..., 36. The green pockets are labelled 0 and 00. When the wheel is spun, the ball is equally likely to land in any one of the pockets. What is the probability that the ball lands in a red pocket? Give your answer as a common fraction. 12. _____

13. Find the sum of all the real numbers x such that 13. _____

$$|x - 99| + |x - 100| = 10.$$

14. Alphonse and Beti have \$41 between them, Beti and Gamay have \$50 between them, and Gamay and Alphonse have \$59 between them. How much money does Gamay have? 14. _____ dollars

15. At a Maritimes hockey tournament, each of the 4 Maritimes provinces has 3 teams, and each team plays one game against every team which is *not* from the same province. (So for example the 3 Nova Scotia teams do not play against each other.) What is the total number of games played in the tournament?

15. _____ games

16. A circle has area 300π units^2. An equilateral triangle is inscribed in the circle. What is the perimeter of this equilateral triangle?

16. _____ units

17. Xavier and Yolande, working in different places, put together a combined total of 480 lunch packages for a math competition. Yolande worked twice as fast as Xavier, and for 10% more time than Xavier. How many of the packages did Yolande put together?

17. _____ packages

18. The (internal) radius of the base of cylindrical cooking pan A is 8 cm, and the internal radius of the base of cylindrical cooking pan B is 12 cm. Pan A contains water which is 2 cm deep, and pan B is empty. If the water from pan A is poured into pan B, how deep will the water in pan B be? Express your answer as a common fraction.

18. _____ cm

19. In basketball, one can score points in three ways: a free throw basket (1 point), a 2 point basket (2 points), and a 3 point basket (3 points). In a tournament, Alicia scored a total of 160 points. She got 34 free throw baskets, and got three times as many 2 point baskets as 3 point baskets. What is the total number of baskets (free throw, 2 point, and 3 point) that she got in the tournament?

19. _____ baskets

20. What is the area of the convex quadrilateral with vertices $(0, 0)$, $(6, 0)$, $(2, 5)$ and $(0, 4)$?

20. _____ units^2

21. A generous teacher gives a 10 question true/false quiz in which you get 2 marks for every right answer, 0 marks for every wrong answer, and 1 mark for every question that you skip (10 is a pass). In how many different ways can you get a mark of 18? You could for example have the wrong answer on the fifth question, with the rest right. Or you could get the right answer on the first 8 questions, and skip the last two.

21. _____ ways

22. A right pyramid has a square base, and all edges of the pyramid are equal. If the volume of the pyramid is 144 cm^3, what is the area of the base of the pyramid?

22. _____ cm^2

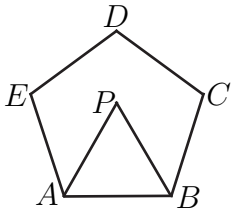
23. Define the sequence a_1, a_2, a_3, and so on by $a_1 = 3$ and

$$a_{n+1} = \frac{a_n - 1}{a_n + 1}$$

for all $n \geq 1$. What is the value of a_{2008}?

23. _____

24. The figure $ABCDE$ is a regular pentagon, and the point P in the interior of the pentagon is chosen so that $\triangle ABP$ is equilateral. What is the degree measure of $\angle BPC$?



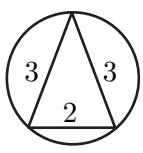
24. _____ degrees

25. In the multiplication problem below, the letters G, M, A, T, and H represent *different* digits. What is the value of G + M + A + T + H?

$$\begin{array}{r} 2\,0\,0\,8 \\ \times \quad\; \text{H}\,\text{T} \\ \hline \text{G}\,\text{M}\,\text{A}\,\text{T}\,\text{H} \end{array}$$

25. _____

26. A triangle with sides 3, 3, and 2 is inscribed in a circle. For what number x is the area of the circle equal to πx? Express x as a common fraction.



26. _____