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| **Question Number** | **Answer** | **Brief Explanation** |
| ***Unit 1*** | | |
| 1 | D | Rotational Symmetry  ; is a multiple |
| 2 | C | turn around the center will match a parallelogram to itself |
| 3 | B | Reflection x = -1 is a vertical line and places the figure in the 1st quadrant; the figure then has to be moved down 5 units |
| 4 | a. (4, 2) | Draw straight lines from the image to the pre-image and find the point of intersection of all 4 lines |
| b. | Find the length of corresponding sides from the image and pre-image; scale factor |
| c. | Each side of the image is parallel to the corresponding side of its pre-image and is ½ the length. |
| 5 | B | Corresponding letters must be used with image and pre-image and both fractions must be set up the same way.  or |
| 6 | D | The only scale factor that will increase the area and create a similar figure is a scale factor greater than 1. |
| 7 | A | Draw straight lines from the image to the pre-image (use the way they named the segment to find corresponding endpoints) and find the point of intersection of both lines |
| 8 | C | Similar figures have **congruent angles** and proportional sides; the sum of a triangle is |
| ***Unit 2*** | | |
| 9 | B | Triangle proportionality theorem  or 🡪 🡪 |
| 10 | C | Given , the angles are in the **same position** when cut by two different transversals |
| 11 | a. W’X’Y’Z’  b. W’’X’’Y’’Z’’ |  |
| c. Yes | Rotations and translations are isometries that maintain size and shape which create congruent figures |
| 12 | A | Translation and rotations are isometries which create congruent figures; if figures are congruent, then they are also similar. |
| 13 | D | Cannot skip a side and an angle when using triangle congruency |
| 14 | B | The only parts marked congruent in BOTH triangles |
| 15 | C | After marking the triangles throughout the proof, there are 2 sides marked and 1 included angle marked (SAS) |
| 16 | A | To prove two parts of two triangles are congruent, CPCTC ***MUST*** come ***AFTER*** proving two triangles are congruent. |
| 17 | B | Rectangle/Square 🡪 Diagonals are bisected and congruent  Parallelograms 🡪 Diagonals ONLY bisect  Square 🡪 Diagonals are bisected, congruent, and perpendicular  Rhombus 🡪 Diagonals are bisected and are perpendicular |
| 18 | C | Parallelogram 🡪 opposite sides are parallel (slope) and congruent (distance)  Rhombus/Square 🡪 all sides are congruent (distance)  Rectangle/Square 🡪 adjacent sides are perpendicular (slope)  Rectangle/Square 🡪 Diagonals are congruent (distance) |
| 19 | C | First step in constructing an angle bisector |
| 20 | D | Perpendicular bisector of the diameter will create the two other vertices of the inscribed square |
| ***Unit 3*** | | |
| 21 | A | Cosine and sine are complementary co-functions  Sine of one angle = Cosine of the other angle |
| 22 | A |  |
| 23 | C | If the, this means the legs are congruent since. If the legs are congruent, then the sine and cosine of the same angle will be congruent. |
| 24 | D | The wanted side is opposite from the given angle and the hypotenuse is also given. The only ratio that uses opposite and hypotenuse is sine since |
| 25 | B | Angle of elevation = angle of depression since they are alternate interior angles. If you move the to the angle of elevation spot you notice that you are given the opposite and trying to find the hypotenuse. The ratio that uses opposite and hypotenuse is sine since |
| ***Unit 4*** | | |
| 26 | a. | Central angles = intercepted arc |
| b. | Central angles = intercepted arc; inscribed angles = ½ intercepted arc |
| c. | Inscribed angles = ½ intercepted arc |
| 27 | a. | Angle APC and Angle BPC are supplementary |
| b. | Find part c. first and then inscribed angles = ½ intercepted arc |
| c. | Central angles = intercepted arc |
| d. | Central angles = intercepted arc |
| 28 | B | is a diameter (since it goes through the center) which makes since it is a semicircle. This makes then inscribed angles = ½ intercepted arc |
| 29 | C | Length uses circumference  or |
| 30 | D | Find the shaded angle (  Sector area uses area  or |
| 31 | B | Measure of 1 angle is since  Length uses circumference  or |
| 32 | D | Cavalieri’s Principle |
| 33 | A | Cylinder uses or since the base is a circle |
| ***Unit 5*** | | |
| 34 | Cone | The mountain is a 3D shape and goes to a point |
| 35 | 12,100 rocks | 10 acres = 435,000 sq. feet; complete dimensional analysis |
| 36 | 6 in x 6 in x 8 in | Since the diameter of the base of the bell is 6 inches, the width and length of the box cannot be smaller than 6 inches. Since the height of the bell is 8 inches, the height of the box cannot be smaller than 8 inches. |
| 37 | A | of the land  for 100% of land |
| 38 | C |  |
| 39 | Center: (1, 2)  Radius: | Group like variables together and factor out the 8 BEFORE completing the square. Circle equation should end up being |
| 40 | C | Create the circle equation. Multiply out the groups 🡪 , group similar exponents together and combine like terms to one side |
| 41 | A | Complete the square; the equation becomes |
| 42 | Calculate the distance and slope of all 4 sides to prove opposite sides are parallel and congruent AND find the distance of the diagonals to prove those are congruent to prove the figure is a rectangle | |
| 43 |  | 🡪 🡪 Opposite reciprocal of is |
| 44 |  | Starting point is A |
| 45 | 20 | Find the length and width using distance formula and then |
| 46 | B | Rectangle/Square 🡪 Diagonals are bisected and congruent  Parallelograms 🡪 Diagonals ONLY bisect  Square 🡪 Diagonals are bisected, congruent, and perpendicular  Rhombus 🡪 Diagonals are bisected and are perpendicular |
| 47 | D | Replace x and y until you get an answer of 25 |
| 48 | A | Starting point is P  ***BE CAREFUL!! It is still using the word ratio a = 3 and b = 2*** |
| 49 | D | New slope = 2 (opposite reciprocal) and new y-intercept = 8 when you use (-4, 0) for x and y |
| 50 | C | The only distance formula using two congruent pieces of the diagonal is C  where is the midpoint of the diagonals |
| 51 | B | since the slope of and the slope of. The height is (or and the base is (or. Find and by doing the distance formula. |
| ***Unit 6*** | | |
| 52 |  | P(Junior | owns a car) = |
| 53 | a. {Joe, Mike, Linda, and Rose}; Owns a bicycle AND skateboard | |
| b. {Ryan, Sarah, Mariko, Nina, Dion, Brett, Juan, Tobi, Joe, Mike, Linda, Rose}; Owns a bicycle OR skateboard | |
| c. {Amy, Gabe, Abi}; Does NOT own a bicycle OR skateboard | |
| 54 | No | Independent events follow |
| 55 | a. | P(Job | less than 18) |
|  | b. | P(Job | 18 or greater) |
|  | c. No! | Independent events follow |
| 56 | A | V = {begins with vowel}  O = {ends with an odd number} |
| 57 | D | Independent events follow |
| 58 | D |  |
| 59 | C | P(blonde | male) = |
| 60 | a. | P(A or B) = P(A) + P(B) – P(A and B) |
|  | b. | P(A or B) = P(A) + P(B) – P(A and B) |
| 61 | a. | P(prime sum | at least one roll is a 3) = (| 🡪 means ‘given’)  P(prime AND at least one roll is a 3) =  P(one roll is at least a 3) = |
| b. | P(prime sum or at least one roll is a 3) =   |  |  |  |  | | --- | --- | --- | --- | | 1, 1 | 1, 2 | 2, 1 | 1, 4 | | 4, 1 | 1, 6 | 6, 1 | 2, 3 | | 3, 2 | 2, 5 | 5, 2 | 3, 4 | | 4, 3 | 5, 6 | 6, 5 |  |   P(prime sum) =  P(at least one roll is a 3) =    P(prime sum AND at least one roll is a 3) = |
| 62 | C | P(A or B) = P(A) + P(B) – P(A and B)  P(female) + P(not owning a red car) – P(females that don’t own red cards) |
| 63 | C | P(odd sum | at least one spin is a 4) =   |  |  |  |  | | --- | --- | --- | --- | | 4, 1 | 1, 4 | 3, 4 | 4, 3 |   P(odd sum AND at least one spin is a 4) =   |  |  |  |  | | --- | --- | --- | --- | | 4, 1 | 4, 2 | 4, 3 | 4, 4 | | 1, 4 | 2, 4 | 3, 4 |  |   P(one spin is at least a 4) = |
| 64 | B | P(black OR A OR Z) = P(black) + P(A) + P(Z) – P(black A) – P(black Z) |