MIXED REVIEW FOR TEKS

TAKS PRACTICE
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Lessons 9.1–9.4

MULTIPLE CHOICE

1. **PARABOLIC REFLECTORS** Parabolic reflectors with a microphone at the focus allow the operator to listen to sounds from far away. A certain parabolic microphone has a reflector that is 22.4 inches in diameter and 6 inches deep. Approximately how far is the focus from the vertex? *TEKS 2A.5.B*

   (A) 5.2 inches (B) 6 inches

   (C) 11.2 inches (D) 24.8 inches

2. **RADAR** An anchored fishing boat's radar has a range of 16 miles. A second boat 6 miles north and 4 miles east of the fishing boat begins moving westward. For approximately what distance will the second boat be in radar range of the first boat? *TEKS 2A.5.B*

   (F) 14.8 miles

   (G) 18.8 miles

   (H) 21.5 miles

   (J) 29.6 miles

3. **PLANETARY ORBIT** In its elliptical orbit, Mercury ranges from 29 million miles to 44 million miles from the sun. The sun is at one focus of the orbit. Which equation could represent Mercury's orbit? *TEKS 2A.5.B*

   (A) $\frac{x^2}{(36.5)^2} + \frac{y^2}{(7.5)^2} = 1$

   (B) $\frac{x^2}{(44)^2} + \frac{y^2}{(29)^2} = 1$

   (C) $\frac{x^2}{(36.5)^2} + \frac{y^2}{(29)^2} = 1$

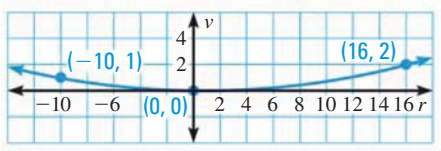
   (D) $\frac{x^2}{(36.5)^2} + \frac{y^2}{(35.7)^2} = 1$

4. **DRIVING DISTANCE** To get from your home to the beach, you drive 8 miles south, then 16 miles east, and then 4 miles south. What is the straight-line distance from your home to the beach? *TEKS 2A.5.B*

   (F) 16.5 miles (G) 20 miles

   (H) 21.5 miles (J) 28 miles

5. **ACCIDENT INVESTIGATION** A car skids while turning to avoid an accident. The circular skid mark is shown below. The car's speed v (in meters per second) can be approximated by $v = \sqrt{9.8\mu r}$ where r is the radius (in meters) of the skid mark and μ is a constant that depends on the road surface and weather conditions ($0 \le \mu \le 1$). About how fast was the car traveling if it is determined that $\mu = 0.7$? *TEKS a.4*



   (A) 9.4 m/s

   (B) 19.8 m/s

   (C) 20.0 m/s

   (D) 28.3 m/s

6. **TANGENT LINES** Two lines are tangent to the circle $x^2 + y^2 = 13$, one at $(-2, -3)$ and one at $(3, -2)$. What is the relationship between the two lines? *TEKS a.4*

   (F) The two lines are parallel.

   (G) The two lines are perpendicular.

   (H) The two lines intersect at the origin.

   (J) The two lines intersect at $\left(0, \frac{13}{2}\right)$.

GRIDDED ANSWER

7. **SOLAR COOKING** You can make a solar hot dog cooker by shaping foil-lined cardboard into a parabolic trough and passing a wire through the focus of each end piece. For the trough shown, how far from the bottom, to the nearest tenth of an inch, should you place the wire? *TEKS 2A.5.B*