Inverse Square Law Worksheet

1. If the intensity at 40 inches is 100 mR, what is the intensity at 80 inches?

2. If the intensity at 72 inches is 60 mR, what is the intensity at 36 inches?

3. A beam measures 20 mR at 50 inches. What is the dose at 25 inches?

4. At 30 inches, intensity is 48 mR. How much radiation is measured at 68 inches?

5. If intensity is 200 mR at 20 inches, what will it be at 40 inches?

6. At 80 cm, intensity is 90 mGy. What will it be at 50 cm?

7. At 110 cm, intensity is 25 mR. What is the intensity at 240 cm?

8. If intensity at 1 meter is 80 mGy, what is the intensity at 2 meters?

9. If intensity at 3 meters is 20 mGy, what is the intensity at 1 meter?

10. At 48 inches, intensity is 64 mR. What is the intensity at 96 inches?

11. If intensity is 10 mR at 6 ft, what is the intensity at 3 ft?

12. At 40 inches, intensity is 72 mR. What is intensity at 20 inches?

13. Intensity is 12 mR at 30 cm. What is intensity at 90 cm?

14. The inverse square law states that intensity is:

A. Directly proportional to distance
B. Inversely proportional to distance
C. Directly proportional to the square of distance
D. Inversely proportional to the square of distance

15. If distance is doubled, intensity becomes:

A. Half (1/2)
B. One-third (1/3)
C. One-quarter (1/4)
D. One-sixteenth (1/16)

16. The inverse square law primarily affects:

A. Beam quality
B. Exposure intensity
C. Image matrix size
D. Pixel pitch

17. The inverse square law is based on:

A. The photoelectric effect
B. Beam attenuation
C. Geometric beam divergence
D. Bremsstrahlung production

18. Why does intensity decrease with distance?

A. X-rays lose energy as they travel
B. X-rays are absorbed by air molecules
C. The beam spreads out over a larger area
D. The generator fluctuates

Answers:

1. 25 mR

2. 240 mR

3. 80 mR

4. 9.34 mR

5. 50 mR

6. 230.4 mGy

7. 5.25 mR

8. 20 mGy

9. 60 mGy

10. 16 mR

11. 40 mR

12. 288 mR

13. 1.33 mR

14. D

15. B

16. B

17. C

18. C

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